WATERSHED RESTORATION ACTS

Y 4.M 53:103-119

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Watershed Restoration Act, Serial N... E

SUBCOMMITTEE ON ENVIRONMENT
AND NATURAL RESOURCES

OF THE

COMMITTEE ON MERCHANT MARINE AND FISHERIES HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

SECOND SESSION

ON

H.R. 4481

A BILL TO RESTORE THE NATION'S AQUATIC ECOSYSTEMS THROUGH THE VOLUNTARY COOPERATION OF FEDERAL, STATE, TRIBAL, AND CORPORATE AND OTHER PRIVATE INTERESTS

H.R. 4289

A BILL TO AMEND THE WATERSHED PROTECTION AND FLOOD PREVENTION ACT TO ESTABLISH A WATERWAYS RESTORATION PROGRAM, AND FOR OTHER PURPOSES

H.R. 4408

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JULY 19, 1994

Serial No. 103–119

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WATERSHED RESTORATION ACTS

TUESDAY, JULY 19, 1994

HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES, COMMITTEE ON MERCHANT MARINE AND FISHERIES,

Washington, DC.

The Subcommittee met, pursuant to call, at 10:10 a.m., in room 1334, Longworth House Office Building, Hon. Gerry E. Studds [chairman of the Subcommittee] presiding.

Members present: Representatives Studds, Hochbrueckner, Unsoeld, Furse, Hamburg, and Gilchrest.

Staff present: Daniel M. Ashe, Staff Director; Frank Lockhart, Professional Staff; Suzanne J. Waldron, Press Secretary; Marvadell Zeeb, Legislative Clerk; Margherita Woods, Minority Staff Assistant; Sharon McKenna, Minority Professional Staff.

STATEMENT OF HON. GERRY E. STUDDS, A U.S. REPRESENTATIVE FROM MASSACHUSETTS, AND CHAIRMAN, SUBCOMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES

Mr. STUDDS. The Subcommittee will come to order, as best it can.

Over 20 years ago, and with the help of young Turks like John Dingell, this Committee had a hand in several pieces of legislation that marked the birth of what we now know as the environmental movement. Laws like the Endangered Species Act, the Marine Mammal Protection Act, the National Environmental Policy Act (NEPA), and the Coastal Zone Management Act helped define the environmental movement and have been invaluable for correcting many of the problems that occur when economics override all other concerns.

However, as good as these laws have been in helping to prevent further damage to the environment, our past investments in environmentally damaging activities continue to pay dividends of destruction today. The preventative medicine of NEPA, Endangered Species Act (ESA), the Clean Water Act, and other environmental laws is vital, but we now need to begin the search for a cure to the decades-old disease of environmental degradation. We need to make the patient whole and healthy again.

Today's hearing is about restoration of the aquatic environment. So far, Federal restoration efforts have addressed this need on a case-by-case basis. In the restoration of our Nation's aquatic ecosystems, examples of this approach abound. This step-by-step approach might be fine if our Nation's aquatic restoration needs were less daunting. If we are to effectively deal with this problem, a case-by-case, bandaid approach simply will not work. To have any

hope of success, aquatic ecosystem restoration must be done as part of an overall strategic vision.

Although different in the details, the bills before the Subcommittee today do indeed take a more holistic approach toward aquatic ecosystem restoration. In addition, these bills promote the creation of partnerships between Federal, State, tribal, and local entities, an approach that has proven itself again and again.

I will leave it to my colleagues to describe the bills in more detail. Let me finish by saying I applaud Mr. Hamburg's and Ms. Furse's hard work in bringing this important issue of aquatic restoration to the attention of the Committee. You are the young Turks of today, and I hope in another 20 years we can look back and say that was the beginning of a new approach to restoring the environment.

Would the young Turk gentlelady, young Turk from Washington, like to make an opening statement?

Ms. UNSOELD. No, thank you. I will just associate myself with the remarks of the Chairman.

Mr. STUDDS. The gentlewoman from Oregon.

Ms. FURSE. Mr. Chairman, I would like to make a statement later, if I may, on H.R. 4289 when we reach that part of the hearing and would defer, if I may, until then.

Mr. STUDDS. Certainly.

Mr. STUDDS. Mr. Hamburg.

STATEMENT OF HON. DAN HAMBURG, A U.S. REPRESENTATIVE FROM CALIFORNIA

Mr. HAMBURG. Good morning to you, Mr. Chairman, and our colleagues, and our witnesses who have come from far and wide today. I want to extend my thanks to you for convening this hearing and for all the support that you have given to me personally, particularly for H.R. 4481, which is the Aquatic Ecosystem Restoration Act.

The greatest technological achievement of our civilization pales in comparison to the complexity and success of an ecosystem which has evolved over thousands of years. Yet one of our greatest failures is in the wholesale destruction of river, wetland and estuarine ecosystems.

Only 2 percent of the rivers of our country are currently considered to be healthy. The sport fishery in three-quarters of our streams has deteriorated to low quality. More aquatic organisms than any other group are now potential candidates for listing under ESA.

Now we are faced with one of our most monumental challenges; restoring the aquatic ecosystems of our country. We must reestablish indigenous plant and animal communities, the distinctive local soils which give them life, and the contours and structure of our landscape which will, hopefully, reweave a web of a million strands.

I introduced H.R. 4481, the National Aquatic Ecosystem Restoration Act of 1994, and H.R. 4408, the Russian River Fisheries and Riverbed Restoration Act, in order to meet these challenges. We must ensure our own future survival and well-being as a species.

We must also fulfill our obligation to coexist peacefully and responsibly with other inhabitants of this planet earth, which is our home and their home.

H.R. 4481 sets national restoration goals and requires the development of a long-term national restoration strategy. The National Research Council stressed the critical need for a national strategy to correct the current fragmented approach to restoration in its 1992 report on the restoration of aquatic ecosystems. H.R. 4481 designates the Fish and Wildlife Service as the lead agency to implement this strategy because of its scientific and technical expertise in the stewardship of habitat and biological communities.

H.R. 4481 establishes a competitive grant program to encourage and fund voluntary grassroots restoration efforts on non-Federal lands. Active local community groups are the key to successful watershed restoration, and we have certainly seen evidence of this in my congressional district.

H.R. 4408, the Russian River Fisheries and Riverbed Restoration Act provides a model for community-based restoration of a river system which has been severely impacted by Federal flood control projects and other development.

The Russian River in Sonoma and Mendocino counties, in Lynn Woolsey's and my districts, with its world class steelhead and coho fisheries, was once a primary destination for fishermen and vacationers from the San Francisco Bay area. H.R. 4408 will implement a restoration plan developed over the last three years by more than 25 organizations, businesses, and agencies.

Restoration of upstream fish habitat in tributaries coupled with a pilot project to test and demonstrate large mainstream river channel restoration will breathe new life into the Russian River system. A basin advisory committee is established to ensure broad-based community participation in the implementation and monitoring of this project.

Whether we accept the challenge of aquatic ecosystem restoration and its requisite long-term vision in this last decade of the 20th century may well be the standard by which future generations will judge our efforts.

I wish to extend my sincere appreciation to all the witnesses who will appear here today. I especially want to thank Mollie Beattie, the Director of the Fish and Wildlife Service for interrupting her trip to Alaska and being here with us this morning. Also, Ms. Elizabeth Norcross of American Rivers, who is here today in support of H.R. 4481.

I want to thank Freeman House, Founder and Director of the Mattole Restoration Council in Humboldt County. The Mattole Restoration Council has truly been an inspiration for this bill. The pioneering work in inhabitory grassroots restoration by the Mattole Council and other groups in my district really have inspired us to go forward with the national strategy.

I want to thank my colleague, Lynn Woolsey, for appearing today in support of the Russian River Bill, H.R. 4408, and finally I want to welcome and extend my thanks to Laurel Marcus of the California State Coastal Conservancy, who is the project manager for the Russian River Resource Enhancement Plan.

With that, Mr. Chairman, I would just like to ask unanimous consent I be allowed to submit additional materials for the record.

Mr. STUDDS. Without objection.

[The material mentioned can be found at the end of the hearing.]

[The prepared statement of Hon. Jack Fields follows:]

STATEMENT OF HON. JACK FIELDS, A U.S. REPRESENTATIVE FROM TEXAS, AND RANKING MINORITY MEMBER, COMMITTEE ON MERCHANT MARINE AND FISHERIES

Mr. Chairman, aquatic ecosystems, including wetlands, streams, rivers, lakes, estuaries, coastal marine ecosystems and associated riparian upland habitats, perform numerous valuable environmental functions. They recycle nutrients, purify water, alleviate floods, maintain stream flow, recharge ground water, act as primary producers in the food chain, provide habitat for plants, fish, wildlife and other dependent species, and provide recreational opportunities. The degradation of our Nation's aquatic ecosystems can affect the entire hydrologic system and natural diversities of all forms of aquatic species associated with these areas.

Our hearing today will focus on the need for restoring our Nation's aquatic ecosystems. We will discuss H.R. 4481, introduced by Congressman Hamburg, a bill that would: (1) provide a comprehensive and integrative framework to direct long-term national aquatic ecosystem restoration activities; (2) coordinate existing Federal programs and policies relating to aquatic ecosystem restoration; (3) activate local, tribal and State restoration activities by providing technical expertise and funding to such entities; and (4) create a dedicated source of funds based on user fees to fund these restoration activities.

We will also discuss H.R. 4289, introduced by Congresswoman Furse, a bill that would amend the Watershed Protection and Flood Prevention Program, which was authorized in 1954 to fund structural flood control projects such as dams and stream channelization. The bill would also authorize funding for non-structural, community-based projects that provide environmental benefits. Funding could also be used to organize local watershed councils, train participants, and develop on-the-ground watershed restoration projects.

And finally, Mr. Chairman, we will review H.R. 4408, a bill designed to help restore the entire Russian River System in northern California. A key component of this legislation would establish an advisory committee to assist the EPA and Soil Conservation Service (SCS) in implementing the goals of the Act. The bill calls for an appropriation of $7 million to be available until expended.

Mr. Chairman, I would like to join with you in welcoming our witnesses and I look forward to hearing their testimony.

Mr. STUDDS. Let me just add, I understand from Ms. Beattie that for all intents and purposes she is still in Alaska. So you know the feeling.

The Chair also apologizes. I have to go somewhere even further than Alaska in about 15 minutes, that is, the Committee on Ways and Means, to defend one of our programs, so I will ask someone else to assume the Chair at that point, and my apologies to those whose testimony I will not hear.

We have two of our colleagues who have asked to appear, and since we are bound by tradition and tradition dictates to seniority, we will go first to the gentlewoman of the District of Columbia. Welcome. Nice to have you here.

STATEMENT OF HON. ELEANOR HOLMES NORTON, A REPRESENTATIVE IN CONGRESS FROM THE DISTRICT OF COLUMBIA

Ms. NORTON. Thank you, Mr. Chairman. I appreciate the opportunity to be here and to testify on behalf of my bill, the Urban Watershed Restoration Act, H.R. 3873. I appreciate also, Mr. Chairman, that you have cosponsored this bill and I appreciate as well that Congresswomen Unsoeld and Furse are also cosponsors. I

have also cosponsored H.R. 4289, which is Congresswoman Furse's Waterways Restoration Act, which has some features in common with my own bill.

If I may, Mr. Chairman, I would like to submit my statement for the record and simply summarize my statement.

Mr. STUDDS. We would appreciate that, absolutely.

Ms. NORTON. I ask you to forgive me; I have had some laryngitis and may not sound like myself.

The Urban Watershed Restoration Act is really the culmination of more than a year's work and a lot of consultation. I chose the Anacostia River as my environmental project when I came to Congress. I quickly found out that the Anacostia was replicated in urban and suburban areas across the United States, and I thus believed that what you, Mr. Chairman, have called a more holistic approach—certainly a more systematic and comprehensive approach to the urban rivers—was necessary. It was at this point that I began to work with environmental groups, with community groups, and with my staff to try to design a bill that would reach to these extraordinarily neglected rivers.

I am pleased that 42 Members of Congress have cosponsored this bill, and I am particularly pleased at the sponsorship of American Rivers, the National Resources Defense Council, the National Wildlife Federation, the Anacostia Watershed Society, as well as the NAACP, and the National Association of Service and Conservation Corps.

My bill would essentially take money from existing funds. What it seeks is to get a fairer share of Section 319 Clean Water Act funds for urban watershed work. It seeks to get 25 percent of the funds rather than the 13 percent that these most polluted of American waterways have gotten. Thirteen percent. Although these urban areas are only 2.5 percent of our land surface, they are 18 percent of the polluted river miles, 34 percent of the impaired lake areas, and 62 percent of the impaired estuary square miles. Yet, they have gotten only 13 percent of the money. These rivers need a voice or else they are going to sink to the point where nobody would even begin to want to restore them.

What would my bill do? Essentially, it tries to give a more cohesive framework, a more systematic approach to restoring these waters.

The EPA or the State would administer the funds. There would be technical assistance from EPA or from another Federal agency. In the District, and in Maryland, for example, the Corps of Engineers has been very helpful to us. What is unique, however, about the bill is the requirement for local citizens' sponsorship, along with governmental sponsorship.

Priority would also be given to projects that include jobs in career development for youth, such as the Youth Corps.

The citizen-centered element of the bill is central, to be redundant. Rivers run through cities and the waterways that we are discussing—the ones that I am calling urban waterways—run through the most populated areas of our country; cities, yes, and suburban areas. And so they get not only the ordinary nonpoint source runoff, they get all that human beings can do to the waterways—dumping, littering, and all that goes along with it.

We are not going to bring these waterways back simply by applying technology. We have to raise the environmental consciousness in these areas, and we have seen as we look at the Anacostia River, how easy that is with just a little bit of help from the government.

What we have had in the Anacostia is here and there, this and that, and a wonderful cooperation in the region, but it has not been systematic enough to make you think that you are in fact cleaning the river. You do not have that sense.

My bill also has environmental justice objectives. For example, the Anacostia runs through areas that are slum areas virtually in the District of Columbia, as well as through beautiful areas of the District of Columbia and beautiful suburban areas in the State of Maryland. But it is, of course, not coincidental that the areas in the District that have seen toxic dumping also are the areas where the river has gotten more than its fair share of dumping.

Mr. Chairman, the waterways I am talking about have it all. They have the raw sewage, they have every conceivable kind of runoff, they have man-made dumping, and yet these are the workhorse waterways of America. In many cases, they are the waterways that built the great cities and urban areas. I hope we will not allow them to sink into eyesores or stink holes, as some of them are becoming.

My bill is both a freestanding bill, and in an abbreviated form, it is now included in the Public Works and Transportation version of the Clean Water Act, assuming we ever get that act through. I ask you to report it out in both forms, and I very much appreciate your early look at and consideration of this bill.

Thank you, Mr. Chairman.

Mr. STUDDS. Thank you, very much. I really appreciate it. It is a focus that we could use a lot more of.

[The statement of Ms. Norton follows:]

STATEMENT OF HON. ELEANOR HOLMES NORTON, A U.S. REPRESENTATIVE FROM THE DISTRICT OF COLUMBIA

Mr. Chairman, thank you for the opportunity to appear before the Subcommittee to testify on H.R. 3873, the Urban Watershed Restoration Act. I also want to thank Chairman Studds and Congresswomen Unsoeld and Furse for co-sponsoring H.R. 3873. I have also co-sponsored H.R. 4289, Congresswoman Furse's Waterways Restoration Act, which has some features that are similar to those in my bill.

The Urban Watershed Restoration Act is the culmination of a year of work and consultation. This badly-needed legislation will provide local governments and citizen groups working together with the means and with a citizen-centered methodology to revitalize the waters in urban areas. To date, H.R. 3873 has been co-sponsored by 42 Members of Congress and endorsed by a variety of environmental groups—among them American Rivers, The Natural Resources Defense Council, the National Wildlife Federation, and the Anacostia Watershed Society—as well as by the National Association for the Advancement of Colored People and the National Association of Service and Conservation Corps.

In summary, the Urban Watershed Restoration Act contains the following provisions:

1. The Environmental Protection Agency (EPA) will establish an Urban Watershed Restoration Grants Program within § 319 of the Clean Water Act, the nonpoint source program,

2. A minimum of 25% of annually appropriated § 319 funding will be dedicated to the Urban Watershed Program,

3. The EPA will encourage those States which have demonstrated successful urban rivers restoration programs to administer the program. For other States, the EPA will administer the program daily,

4. Grants will only be given to projects that have both a local government and a local citizen group sponsor,
5. The EPA will review grant applications pursuant to an established set of criteria, including standards related to ecological objectives as well as economic and community goals,
6. Priority will be given to projects that provide jobs and career development in urban watershed restoration for youth, particularly through youth corps programs, and
7. Technical assistance will be provided by the EPA and other Federal agencies with expertise in urban watershed restoration and protection activities.

While the current provisions of the Clean Water Act address some of the threats to urban waterways, the severity of the problems warrants a specific program designed to give more attention to the restoration of urban lakes, rivers, and streams. According to a 1992 Environmental Protection Agency study, urban areas comprise only about 2.5% of the total land surface of the country, but pollution from these areas accounts for more than 18% of impaired river miles, 34% of impaired lake acres, and 62% of impaired estuary square miles.

H.R. 3873 offers the possibility of addressing the environmental degradation of urban waterways by creating an Urban Watershed Restoration Program within §319 of the Clean Water Act and dedicating at least 25% of annually appropriated §319 funding to urban waters restoration projects. Under my bill, projects would be funded only if they had both a local government and a local citizen group sponsor.

The bill also is in keeping with President Clinton's Executive Order, issued on February 11 of this year, instructing Federal agencies to make environmental justice part of their missions by identifying and addressing the human health effects of their programs, policies, and activities on minority and low-income populations. It is no accident that toxic dumping and other environmental abuses occur far more frequently where the poor and people of color live. It should come as no surprise that urban waters have encountered similar neglect and abuse.

Without a voice for our urban rivers, they have sunk into an unbelievable level of neglect. The technical term for what plagues urban waterways is "nonpoint source pollution"—runoff from lawns and farms, raw sewage leaking from pipes and sewers, and trash dumped by individuals and businesses. In lay person's terms, these waterways, which have been so central to building America, have become stinkholes and eyesores. The water crisis in the District of Columbia involving cloudy water from the Potomac River in December of last year signals the urgent need for more attention to urban watersheds.

The numerous environmental restoration efforts already under way, especially in the Washington metropolitan area, are a good indication that residents of urban communities are capable of taking a more active role in revitalizing the waterways in their communities. It is time to restore them to the beauty and variety of uses nature originally provided.

Mr. STUDDS. The gentlewoman from California, Ms. Woolsey. Welcome.

STATEMENT OF HON. LYNN C. WOOLSEY, A U.S. REPRESENTATIVE FROM CALIFORNIA

Ms. WOOLSEY. Thank you, Mr. Chairman, and thank you to your Subcommittee for giving me the opportunity to testify today on H.R. 4408, the Russian River Fisheries and Riverbed Restoration Act.

The southern part of the Russian River flows from Representative Dan Hamburg's district through the Sixth Congressional District of California, which I am proud to represent.

The Russian River is a vital resource to many communities in northern California in terms of jobs, drinking water, recreation, and it is also an essential fish habitat for steelhead and salmon. The recent degradation of the river caused by activities such as timber harvesting and mining and agriculture, and the growth of urban areas has severely impacted our river.

It is apparent that a healthy Russian River is truly essential to everyone's best interest in our district and around.

Yet, determining how to restore the health of the Russian River has been the cause of heated debates in northern California for many, many years. With so many differing needs for the river's resources, from jobs, to recreation, to drinking water, to salmon and steelhead habitat, it has seemed impossible to get all the interested parties to agree on the best way to begin restoration.

Mr. Chairman, that is, until now.

As a result of public forums and numerous meetings with concerned citizens and organizations, Congressman Hamburg and I have introduced H.R. 4408, which has broad-based support from the Russian River communities in both of our districts. H.R. 4408 focuses on two of the most urgent problems confronting the Russian River: First, restoring salmon and steelhead, and, second, preventing the main channel from further degradation.

To bring back salmon and steelhead to our river, H.R. 4408 fosters unprecedented cooperation between various levels of government, including the California Department of Fish and Game, and the Soil Conservation Service. Federal funds will be used in this bill to implement the innovative plan by the Department of Fish and Game to create salmon and steelhead nurseries in the Russian River streams.

To protect the health of the main channel, our bill will fund a pilot project which will implement the recommendations of a Russian River advisory committee on restoring and enhancing the riverbed. The advisory committee will be made up of representatives from interested groups and agencies and it will be led by the California Coastal Conservancy. Laurel Marcus from the Conservancy will be providing you with very valuable information and testimony a little later this morning.

Together, these two projects are the logical and practical first step in the process of restoring the Russian River back to its natural health. With the support of the Russian River communities, the cooperation of all levels of the government, and the dedication of Congressman Hamburg and myself, I am confident that H.R. 4408 will successfully begin the restoration of our magnificent river.

I look forward to working with you, Chairman Studds, and with the Committee on the Russian River Fisheries and Riverbed Restoration Act, and I thank you again for holding this important hearing.

Thank you very much, Mr. Chairman.

Mr. STUDDS. Are there questions for either of our colleagues?

If not, we thank you for your active participation. We look forward to working with you.

Mr. STUDDS. We will bring the first panel, all four of you, to the table, and I will take advantage of this time to apologize once again for the necessity of my leaving, particularly to Director Beattie.

You look remarkably alert under the circumstances. And I am going to leave you in the capable hands of the distinguished gentleman from New York.

Ms. UNSOELD. Mr. Chairman, before you leave, would you not agree that there are members of the new administration that are

also the young Turks of the future and that Ms. Beattie fits into that category?

Mr. STUDDS. Oh, absolutely. Yes. This is a matter that could easily get out of hand, however.

Mr. HOCHBRUECKNER. [Presiding.] Thank you, Mr. Chairman, and I welcome the first panel, and as you know, the Subcommittee rules are five minutes of presentation. We look forward to your input. The Chair now recognizes Ms. Beattie.

STATEMENT OF MOLLIE BEATTIE, DIRECTOR, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF INTERIOR

Ms. BEATTIE. Thank you, Mr. Chairman. I am very glad to be here today to testify on behalf of the Department of Interior and the U.S. Fish and Wildlife Service concerning H.R. 4481, the National Aquatic Ecosystem Restoration Act of 1994.

I commend Mr. Hamburg and the other cosponsors of the bill for their insight in recognizing the importance of restoring our Nation's degraded aquatic ecosystems.

As you know, degradation of the Nation's aquatic ecosystems and loss of aquatic biodiversity have reached critical levels. Entire hydrologic systems and natural diversity of all forms of aquatic riparian systems are at risk.

For example, the EPA estimates that nearly one-fourth of our Nation's 3.25 million miles of streams are affected by municipal or industrial effluents. We have destroyed roughly 117 million acres of wetlands since the late 18th century. Nearly half of the animals on the Federal list of threatened and endangered species are aquatic.

The decline of Atlantic Coast striped bass populations alone cost an estimated 7,500 jobs and $220 million between 1974 and 1980, and the commercial harvest of Pacific salmon in Washington, Oregon, and California dropped from $200 million in 1980 to $120 million in 1990.

These losses highlight the need to restore our degraded aquatic ecosystems. Perhaps our greatest needs include protecting and restoring habitat for native flora and fauna, controlling nonpoint source pollution, and enhancing the natural purification capabilities of our aquatic ecosystems.

Prior to the introduction of H.R. 4481, Congress addressed the need for aquatic ecosystem restoration by passing a variety of basin-specific legislation such as the Great Lakes Fish and Wild Life Restoration Act, the Central Valley Project Improvement Act, the New England Fishery Resources Restoration Act, the Klamath River Basin Fishery Resources Restoration Act, and the Lake Champlain Special Designation Act.

These efforts have recognized the necessity of restoring the affected resources, but they have focused on localized problems. The more successful of these have received strong financial support and have developed effective partnerships among Federal, State, local, and tribal governments and the private sector and take a holistic approach to restoration.

Still, Federal environmental policy has not devoted sufficient nationwide attention to restoring declining aquatic ecosystems. For

this reason, an aggressive, comprehensive approach, such as that provided by H.R. 4481, is now needed.

From our perspective, the introduction of H.R. 4481 is timely. The service recently embarked on an ecosystem approach to fish and wildlife conservation and approved a new action plan for fishery resources and aquatic ecosystems. These efforts focus on building partnerships with other management entities and with private interests to better leverage our collective abilities to help meet ever increasing fish and wildlife resource challenges. Without strong partnerships, the effectiveness of independent restoration initiatives will continue to be limited.

The cosponsors of H.R. 4481 recognize this and emphasize a grassroots approach to aquatic ecosystem restoration. The bill supports local tribal and State aquatic ecosystem restoration efforts by providing technical expertise and funding to such entities to achieve effective restoration where it is most needed and will be most beneficial. The bill also requires coordination among existing Federal programs and policies relating to aquatic ecosystem restoration.

I might say after a year at my job I myself do not yet have a clear picture of those policies and programs and therefore see a great benefit for H.R. 4481 in that vein.

Another important aspect of this legislation is its comprehensive and integrated framework for directing long-term national aquatic ecosystem restoration activities. The focal point of this legislation is the development of a national aquatic ecosystem restoration strategy. We believe that a coordinated strategy is needed and we welcome the opportunity to lead efforts to develop and implement it.

H.R. 4481 creates a national council to review and select restoration projects for funding that are consistent with and supportive of the strategy. The service believes that this is a reasonable approach to project selection. A local or regional approach would have the benefit of improved responsiveness to local needs. However, such an approach would also require establishing parallel review systems that might create inconsistencies in application of the strategy. Instead, the incentives in 4(c)(2) of the proposed legislation for restoration projects to include local cooperators and cost-sharing would effectively ensure responsiveness to local needs.

In response to the Committee's questions about the strengths and weaknesses of the bill, H.R. 4481 would provide an excellent foundation for restoring our Nation's aquatic ecosystems. The strengths of the bill are its recognition of the importance of our aquatic ecosystems and the peril they face, the development of a national strategy for guiding restoration activities, the emphasis on grassroots support, and direct funding of restoration projects that will benefit the ecosystems that provide direct employment benefits to the local economy, and to the comprehensive review and coordination of Federal programs and policies.

The bill could be improved in a few areas. It requires a planning process that could delay implementation of restoration projects until 1996 or beyond. Also, the bill leaves it to the task force to create a system of funding support.

The service is concerned that base appropriations might be earmarked for contribution to the fund, thereby reducing agency capability to address other resource issues.

The service looks forward to working with the other tasks force members to produce a system that will provide strong financial support for the restoration trust fund.

The Administration has a number of suggestions for amendments to the language of H.R. 4481 which we will provide in a subsequent report to the Committee prior to the markup.

In closing, Mr. Chairman, the Department of the Interior supports H.R. 4481 and believes that with some refinements it will provide a significant step forward in efforts to restore our aquatic ecosystems. We look forward to embarking on a strong national aquatic ecosystem restoration effort for today and for the future.

I would be happy to answer any questions you or the Committee may have. Thank you.

Mr. STUDDS. Thank you very much, Ms. Beattie.

[The statement of Ms. Beattie can be found at the end of the hearing.]

Mr. STUDDS. Mr. House, founder and director of the Mattole Restoration Council.

STATEMENT OF FREEMAN HOUSE, MATTOLE RESTORATION COUNCIL

Mr. HOUSE. Mr. Chairman, members of the Committee, my name is Freeman House. I am the founder and director of the Mattole Restoration Council in northern California. The MRC and its member groups have for 15 years engaged in salmon enhancement and watershed rehabilitation work, and in community organizing in the service of these activities.

Civilizations and nations rise and fall according to the health of their ecosystems. This well-documented cycle has been repeated again and again in human history: in China and Mesopotamia, on the Ionian peninsula, and on the Phoenician coast of latter-day Lebanon. After 500 years of Euroamerican residence in North America, we are facing this regular crisis of civilization once again. But this time there may be a difference. My knowledge of history is extremely limited, and I may be wrong about this, but as far as I know, never before has the governing body of a great nation recognized the consequences of the exhaustion of their resources in time to mount a strategy to break the cycle. I see this bill as an important part of that strategy and I am exceedingly proud to contribute to your deliberations. I am proud, too, that H.R. 4481 was introduced by the Congressman from my district, Dan Hamburg.

I would like to spend my time today talking to you about why I believe that a localized community approach to this strategy is essential to its success. There are several reasons why this is true. The health of ecosystems and their reaction to excessive development is a phenomena made up entirely of details; details of population fluctuations, of weather patterns over the long term, of land use history and on and on. Not to mention the idiosyncracies of individual landowners. We also need to remember that we are entering into a timetable dictated by nature; an undertaking where trying to imagine short-term fixes will almost inevitably result in the

waste of public funds. The natural recovery of damaged ecosystems proceeds at its own pace. If we are wise, we will attempt to time our restoration programs within natural processes of recovery rather than attempting to impose technological solutions. In the Mattole watershed, we have guessed that we are engaged in an undertaking that will demand the attention of residents and landowners for another 20 to 30 years.

So we have to ask ourselves how we can cost-effectively fill the requirements for intimate ever-changing detailed observation combined with the need to maintain a high level of commitment over a period of time which may be longer than the life of the current generation. I have been able to imagine no other solution to this problem than to rely on the people who are already immersed in the ecosystems with which we are concerned—the residents and landowners of watersheds.

Further, we need to encourage the development of nonprofit inhabitory entities which assume as their goal the restoration of watersheds to historical levels of health and productivity. This is not to exclude the patterns of vested interest that exist in every natural area, but to provide these same interests with an overarching vision which provides for our collective needs.

The goals of H.R. 4481, as I understand them, are twofold: To establish a national strategy for aquatic ecosystem recovery and to provide fiscal support where it will do the most good at the level of the active watershed community. Two generic problems arise in the implementation of these goals. One is the tendency for Federal strategies to be top-heavy; and the other is the fact that Federal funds tend to become heavily politicized as they move toward their intended goals. Too often I have had the distressing experience of seeing appropriately targeted legislation diverted from its intent before reaching its desired constituency.

Should the Fish and Wildlife Foundation remain the vehicle for distributing aquatic restoration funds, the bill before us needs to add strong, specific language recognizing the needs of community groups which seem to be, but are not, peripheral to on-the-ground projects. There needs to be ample support for the aforementioned planning and for project development at the local level. Staffing for volunteer coordination will pay for itself many times over. Monitoring and evaluation must be provided for at the functional local level, this is absolutely essential in my mind, as well as at the centralized oversight level. This provides a feedback loop that allows restoration workers to evaluate and improve their own strategies as the work proceeds.

Unless we provide for educational increments at the level of local primary and secondary schools, how can we hope to recruit the new energies that will be required to maintain our long-term work? The existence of real overhead costs at the local level needs to be recognized.

These comments are presented out of a conviction that we should move ahead rapidly to implement the goals of H.R. 4481 to its success. My concerns were developed in consultation with other people in California. I can tell you there is a tremendous excitement over the development of a national strategy for the restoration of aquat-

ic ecosystems, and a quiet anxiety about our ability to implement it.

I would like to congratulate the sponsors of this bill for the audacious and epoch-making quality of their intention, and to wish you all the best of luck in inventing forms which will demonstrate those intentions in the thriving, healthy streams and waterways of North America.

Mr. HOCHBRUECKNER. Thank you, Mr. House. And, by the way, based on this article written by you, you really are, along with Mr. Simpson, Mr. Mattole. So thank you.

Mr. HOUSE. Thank you, sir.

[The statement of Mr. House can be found at the end of the hearing.]

Mr. HOCHBRUECKNER. At this point we will hear from Ms. Beth Norcross from American Rivers. Ms. Norcross.

STATEMENT OF BETH NORCROSS, LEGISLATIVE DIRECTOR, AMERICAN RIVERS

Ms. NORCROSS. Thank you, Mr. Chairman. I am Beth Norcross, the legislative director of American Rivers, which is a national conservation organization dedicated to the protection and restoration of America's rivers and streams.

I will testify directly today on H.R. 4481, and have a few brief words on H.R. 3873, but I would like to say at the outset that we do support strongly the waterways restoration program bill, H.R. 4289, and commend Ms. Furse for introducing what we think will be landmark legislation.

We have had an opportunity to have some input into that legislation. I know you have been working very closely with our colleagues at the coalition to restore urban waters, and let there be no doubt about it, these folks are doing the real work, the real environmental work one river at a time, and we appreciate that you are working in the urban river field and also what will result, we feel, in a very broad restoration effort under your bill. So thank you for that.

American Rivers also strongly supports H.R. 4481 and appreciates Congressman Hamburg and Congressman Studds introducing this legislation. This, if passed intact, will have a dramatic effect and a long-standing effect on the restoration of the Nation's waterways.

While this bill addresses all aquatic resources, I will confine most of my comments to the important effects this bill will have on riverine systems.

Rivers are essential, dynamic ecological systems, crucial to our Nation's well-being. We all like to say at American Rivers the veins and arteries of a continent. They transmit soil and minerals and other nutrients and they serve as corridors for biological exchange for the movement of wildlife.

Rivers are also important environmental indicators and, unfortunately, the indications are not so good right now. A third of all freshwater fish species are imperiled. A recent report by the State of Arizona stated that they had lost 90 percent of their low-elevation riparian habitat.

In the Columbia River Basin, 16 million salmon used to team the streams; now we are down to about 200,000 wild salmon.

Our rivers are certainly in trouble. The pressure on riparian and ecosystems is tremendous from point source pollution, dams, agriculture development, timber, mining, urban runoff, and mineral activity. In its landmark piece, the Restoration of Aquatic Ecosystems, the National Research Council stated, and I am quoting here, "aquatic ecosystems worldwide are being severely altered or destroyed at a rate far greater than at any other time in human history and far faster than they are being restored."

The findings of the EPA's biannual 305(b) report where they report on the national water qualities released this spring were not rosy. Over the 20 years the Clean Water Act has been intact, 44 percent of our Nation's rivers and streams still do not meet State water quality standards. And while that is a disturbing statistic, it certainly is not surprising. The Clean Water Act has improved the chemical water quality quite a bit, but has done little to address pervasive threats to the biological and physical structure of our streams.

In response to this dire picture of our Nation's aquatic health, the National Research Council in that same report I referred to a moment ago, stated strongly that, I am quoting again, "There is a need for comprehensive, integrated programs that support stream and river restoration at all levels inherent in the drainage hierarchy."

It went on to recommend that a national aquatic ecosystem restoration strategy be developed for the United States. They gave a cautionary note. They said, "although restoration ecology applied to aquatic ecosystems is in a very early stage of development, the prospect for substantive improvements in damaged aquatic ecosystems is excellent." And that gives American Rivers a lot of hope for the future; that regardless of what we have done to these streams we are finding that rivers are extremely resilient and if we act now and we act comprehensively, there is a chance for full recovery, we believe.

H.R. 4481 took up the mantle that was laid down by the National Research Council's report by establishing a high level Federal task force to develop just such a strategy. Importantly, the task force will include not only the appropriate Federal agencies but also State agencies, Native Americans, academic institutions, and nonprofit organizations. And while such a diverse group for such a task force may at first appear unwieldy, we believe that it is important to have everybody at the table.

Currently, a variety of Federal, State, and local agencies manage the Nation's aquatic ecosystems, often with different, if not divergent, objectives, and in the case of rivers, this is particularly damaging because they are by definition integrated ecosystems, which know no jurisdictional boundaries.

While the development of a national strategy is certainly the first step, it is really meaningless unless there is some vehicle with which to implement it and H.R. 4481 does indeed provide a vehicle and a funding mechanism with which to implement it.

I see my time is running low, so I will ask the balance of my statement be put in the record.

I would just say in regard to the funding source that our studies up in New England have found that the public is quite amazed that industries—who are using our rivers, which are public resources, are not paying for them, and I think that they would welcome, even if it meant a few extra cents to their electric bills, their producers paying for what they are degrading.

I would be remiss if I did not say a few words about the Urban Watershed Restoration Act. Ms. Norton has introduced this. We have worked closely with her. Among the Nation's rivers, urban rivers are the most degraded and are absolutely in the worse shape. They got a head start on the rest of the rivers in terms of degradation. They have had centuries of settlement and misuse. Ms. Norton gave an eloquent statement, and I certainly will not try to replicate that, but I will say these rivers most often run along areas that are the least enfranchised and in our lowest income areas. So we applaud her efforts and work with her to see timely passage of this important legislation.

Thank you, and I will be glad to answer any questions.

Mr. HOCHBRUECKNER. Thank you, Ms. Norcross, and let me assure all of you that your statements will be included in the record in their entirety.

[The statement of Ms. Norcross can be found at the end of the hearing.]

Mr. HOCHBRUECKNER. At this point, we will hear from Ms. Laurel Marcus from the California State Coastal Conservancy. Ms. Marcus.

STATEMENT OF LAUREL MARCUS, CALIFORNIA STATE COASTAL CONSERVANCY

Ms. MARCUS. Thank you, Mr. Chairman. My name is Laurel Marcus. I work for the California State. I am the manager of the Russian River enhancement plan.

The State coalition is a nonregulatory agency which has completed and implemented over 25 watershed creek and river projects statewide. H.R. 4480, the Russian River Fisheries and Riverbed Restoration Act creates a partnership between the Federal, State, local agencies, and community organizations to bring back an entire river and watershed system. For the past three years, the California State Coastal Conservancy has led a community-based planning effort which focuses on balancing the needs of people with the need to restore fish habitat in this river system. This project is the largest effort in California that addresses an entire river system and attempts to enhance all of its beneficial uses.

The Russian River was once a world-famous steelhead fishery and was well-known in North America for its trophy-sized fish. With the advent of large Federal water projects, the watershed was developed. Two Corps of Engineers reservoirs were constructed which provided drinking water to a million people and flood control to thousands. Additional Federal flood control projects were built to attempt to stabilize the river banks. Landowners were encouraged by these developments to reclaim additional river wetlands and squeeze the river into a smaller channel. Gravel was mined from the river to build dams and roadways.

Fifty years later, the fish are mostly gone, and the coho salmon, once a common inhabitant of this system, has now been nominated for listing on the Federal Endangered Species Act. The river channel has downcut in response to the dams, groundwater levels have dropped, costing farmers and cities additional funds to pump water. The land along the river is now eroding as the river tries to readjust to our developments. Over 80 percent of the riparian forest is gone.

The long-term effects of our attempts to control and use the river have been to reduce many of the benefits that it once provided. The Russian River enhancement plan, which the Conservancy is preparing, documents the long-term environmental and economic implications of both Federal water development projects and the subsequent floodplain developments and other watershed changes that have occurred.

We have collected over 50 years' worth of hydrologic, geomorphic, and biological data on this river and it is one of the best studied river systems in the country. The focus of the plan is to restore balance to the river's processes, and thus sustain the water supply, agricultural land, and the fish and wildlife habitat. All these uses and resources are intimately connected.

The plan recommends restoring a river meander corridor of an adequate width to sustain a healthy riparian fish habitat but is smaller than would have historically occurred. The real question that the Russian River plan addresses affects most of the rivers in the western United States: How can we bring our fisheries back in developed watersheds? Can we sustain a healthy ecosystem and a healthy economy?

In answering this question, the Russian River plan provides a model for many other systems and a scientific approach that is applicable in many areas. Clearly, it is no longer worth even thinking about having the Federal Government, the State of California, or any other State set aside vast tracts of land to restore fish populations. Instead, we must view our river systems with an eye for sustainable human uses and sustainable fishery habitat.

Our plan utilizes a vast store of scientific information on the Russian River to guide our restoration concepts and to bring balance back to the river. Our planning process also brings the community of interest groups into river restoration planning. We have created a diverse community of farmers, landowners, fishermen, environmentalists, water purveyors, businesses, Federal, State, local agencies, and elected officials, recreational interests, and native Americans to guide the planning effort. A balanced river benefits all these groups.

We have also interviewed many landowners, held over 50 public meetings and work shops, and made numerous presentations about river science. Our Committee members are now very well versed on river hydraulics and sediment transport and they are dedicated to restoring this river. This inclusive open-planning process has been heralded as a model for government planning, and just as this science and restoration-based approach provide an example to others, the community-based process we have employed also provides a national example.

Our State Senate Natural Resource Committee will be holding hearings next month on the Russian River and other river systems around the State, and they are attempting to develop legislation for these other rivers using our planning process as a model. The State and local agencies have expended over a million dollars in studies and staff time for this plan. H.R. 4408 would make the Federal Government a partner in this effort, and we urge your support of this bill.

At this time, I would also like to request to be able to put a number of the documents associated with our plan into the record. Thank you.

Mr. HOCHBRUECKNER. We will be happy to accept the documents and put them into the record.

Ms. MARCUS. Thank you.

Mr. HOCHBRUECKNER. Thank you and thank you for your testimony, Ms. Marcus.

[The statement and the documents of Ms. Marcus can be found at the end of the hearing.]

Mr. HOCHBRUECKNER. At this point, on behalf of the Chair, I have a question for each of you and we will just go down the line.

The question is, restoration under this bill would be primarily a bottom-up process where local citizens groups would submit proposals to the service for consideration. In your opinion, what are the strengths and weaknesses of this type of approach? Ms. Beattie.

Ms. BEATTIE. Mr. Chairman, we have discovered in our experience with programs of watershed or restoration and other programs generally regarding natural resources that local participation is essential, and so we see this grassroots, bottom-up approach to the grant proposal process as a very strong point of the bill.

Recent polling data has, I think, starkly shown that Americans have largely given up on the effectiveness of their own personal local actions for environmental improvement. And the one place we have seen counteracting that is in many of the aquatic restoration programs we have around the country right now where people actually get their hands in the water, actually prepare the grant proposals, and see the restoration effects of their work. And it has been very inspiring to see that, given that there is an air of cynicism otherwise.

So we see this as essential and one of the strongest fibers in this bill.

Mr. HOCHBRUECKNER. Thank you. Mr. House.

Mr. HOUSE. I think the people I work with recognize the need for a national strategy and an overall plan for watershed restoration. However, we also, any of us that have been working in this field very long, recognize the need for a comprehensive plan, watershed by watershed.

And I would suggest that we need not so much the participation of the locals in that sense, as much as the guidance of the locals. Comprehensive planning has to be based on local observation over the long term.

I also need to remark that one of the weaknesses of this process might be the focus on proposals on a project-by-project basis. A mechanism needs to be developed so that there is support for a planning process that goes on at the local level, which is not to say

that projects should be delayed until that planning process is in place, but the proper function of the national council would be to establish requirements and priorities for a watershed comprehensive planning process, provide support for it, and then accept guidance from local councils on that matter.

Mr. HOCHBRUECKNER. Thank you. Ms. Norcross?

Ms. NORCROSS. Well, you have put me in a tough spot. You know, we are a national environmental organization based here inside the beltway. I would like to be able to tell you we could do it all from here, but of course we cannot.

What we have found time and time again, as I said in my introductory comments about our colleagues at CRUW, that the only way to restore and protect aquatic ecosystems is from a grassroots-driven process. Someone asked me yesterday how we got our project ideas, as if I went out looking for them. Well, we get them from the ground up, and they come to us from people looking for help and looking for some assistance.

The infrastructure is in the ground, the interest is on the ground and the people that are going to carry these out are those who are invested in, who live by these rivers, not by those of us who live in Washington.

What I think that we can provide through this legislation is technical assistance. We can provide the funding, and we can provide some consistency and potentially some national standards that might be helpful in integrating these projects in a meaningful way.

Mr. HOCHBRUECKNER. Thank you. Ms. Marcus.

Ms. MARCUS. I have planned and implemented about 10 different projects of this kind and I do not think I have ever had one that I did not use a local advisory group. And the reason for that is that most of the watersheds that I deal with are private land, and when we are working with private landowners they want to feel that they have a major stake in saying how they manage their lands and how they deal with the river or stream that goes through their property.

Undoubtedly, what we are trying to do in turning around the State and the country's rivers is changing land management attitudes and the way that you do that is on a local level.

It is also quite true in most urban areas that I have dealt with that local government has the greatest amount of control over the land uses that affect the rivers. So you have to have some very basic buy-in by a majority of the local interests in order to get a successful program. However, it is also very important to have the Federal agencies that regulate a lot of the other uses that affect these systems in there, too.

So I would say that having a strong local commitment through a Committee, combined with Federal agency involvement, is about the best thing you can do.

Mr. HOCHBRUECKNER. Thank you.

Mr. HOUSE. May I make one more comment, Mr. Chairman?

Mr. HOCHBRUECKNER. Yes, Mr. House.

Mr. HOUSE. There is also a need to recognize work that has already been done in the field. There is a danger of a remote agency coming in and reinventing the wheel. In a case like ours, especially in the field of comprehensive planning, we have been working at

it over a period of years. And it would be a waste of Federal funds for the Fish and Wildlife Service to come in and do all that work over again.

So I would urge the Committee to consider a mechanism for recognizing and evaluating work that has already been done in specific areas.

Mr. HOCHBRUECKNER. Any other questions or comments?

At this point, I would like to recognize my colleagues, and then I have several questions from the Chair for Ms. Beattie.

At this point, the Chair recognizes our colleague from Oregon, Ms. Furse.

Ms. FURSE. I have no comments at the moment, Mr. Chairman. No questions.

Mr. HOCHBRUECKNER. Mr. Hamburg from California.

Mr. HAMBURG. Thank you, Mr. Chairman.

I just want to briefly comment that this is probably not the best attended hearing on the Hill this morning, but it just may be the most important. Any of us that perused the periodicals or daily newspapers, it seems like there is a real awakening attention to this problem.

Recently, Mother Jones magazine devoted a lot of their August issue to talking about the decline of the aquatic ecosystems. The L.A. Times did a story on the loss of, really the destruction of the fishery habitat on the East Coast of the United States.

When we talk about this issue, it is almost so big and so difficult for people to focus on, that I think their attention is geared to more specific things like what should we do in Haiti, or should the District of Columbia be allowed to have a domestic partners law. I mean, things like that bring great amounts of attention here on the Hill, but when we are talking about something that is absolutely vital to the future of the species that inhabit this planet, it is a little hard to get our arms around.

Also, in terms of the costs that are going to be incurred to just begin to tackle this problem, when you compare the costs that are called for in H.R. 4481 with the amount of money that has been invested in compromising this habitat, it really is the proverbial drop in the bucket.

We have spent billions of dollars putting dams on our streams and developing hydropower facilities and tremendous amounts of work have been done on Federal mining and grazing lands and forest lands and now we are talking about just a very small investment to begin the process of restoring habitat and restoring these ecosystems. I hope that we can be visionary enough to keep our focus on this issue and also realize that we are talking here about investing pennies to give ourselves some beginnings in cleaning up the mess that we have created.

So I did have some questions I wanted to ask, Mr. Chairman, if I could. Maybe I will start with Director Beattie.

Just to give you a chance to embellish a little bit, I understood from your testimony that you think that although we have various laws and regulations in place, that this legislation is necessary to accomplish the purposes that are set forth, and I would just like you to state again for the record your feeling about the necessity of this kind of a bill and the strategy that it puts forth.

Ms. BEATTIE. I would summarize it in just a couple of points, Congressman. The first would be that the bill gives us an overall comprehensive plan by which local groups can guide their efforts, and that although we have had individual successes on the aquatic ecosystem restoration around the country, they exist because of the personal interest of a local person or the personal interest of a Member of Congress, not according to any plan that has put those efforts in priority.

Second of all, H.R. 4481 would provide funding, and if you ask what the essential components of any of those successes have been, one of them has been funding.

And, third, again, I think one of the important aspects of the bill is the overall review and coordination of Federal aquatic restoration programs and policies, which right now, to my mind, has not happened.

Those three elements of the bill, to my mind, make it essential.

Mr. HAMBURG. Would you also comment on why the service should be the focus of this effort?

Ms. BEATTIE. Yes, I will give you an unbiased opinion.

We have, first of all, trust responsibilities for three sets of natural organisms that are perhaps the best indicators of an aquatic ecosystem's health, and those are migratory birds, which obviously include waterfowl and shore birds; threatened and endangered species, which I think one of the witnesses talked about how all of the adverse uses of rivers immediately or over time result in endangered species, and this is the importance of endangered species, is that they are indicators of problems in the health of an ecosystem; and, third, anadromous fish is our other responsibility. So we have trust responsibilities for perhaps the most important indicators, short of the human health, of the ecosystem's health.

We have technical experience and statutory responsibilities for a wide variety of aquatic ecosystem issues, everything from nuisance plants to, again, these trust species that I mentioned. We have a variety of programs to protect and restore aquatic ecosystems, which have given us a wealth of knowledge, and those include our partners for wildlife program, our coastal ecosystems programs, our North American waterfowl management plan, the Trinity-Klamath habitat conservation plan, and work with private landowners.

I might add, our partners for wildlife effort, which is a cooperative nonregulatory program to reach out to private landowners for restoration on their lands, has 11,000 participants, 28,000 projects, and has restored almost a quarter million acres of land, largely wetland up until now.

Finally, we have a field staff across the Nation in many, many small field offices, very familiar with local people, very well accepted at the local level, and they are taking an ecosystem approach now, officially, that is based on watersheds for those reasons.

If I could add, I know I am over my time, but one thing to what you were saying earlier, Congressman, which is the problem is very big and there are intractable problems when you look at the scale of some of the hydro development, for instance. But this Partners for Wildlife Program and the Coastal Ecosystem Program has shown us often that the solutions are very small. The effect of the restoration of a stream channel, the effect of breaking a few drain

tiles here and there, the power of the ecosystem to restore itself is really amazing if we get there in time, and the enthusiasm of landowners when they see the effect of this and of local people is unmatched.

Mr. HAMBURG. Thank you, very much.

Mr. Chairman, I have a few other questions but since my time is up, I would be glad to yield back to you.

Mr. HOCHBRUECKNER. That is fine. Why don't you continue. I have one final question for Ms. Beattie when you finish, so please continue.

Mr. HAMBURG. If we could get your comments on this user fees issue. Of course, this is one of the toughest sells in this day and age in the Federal Government, anything that is going to authorize the appropriation of funds. And although I characterized it as pennies, essentially millions of dollars, and every million is very difficult to find today, and while I am sure the people in this room at least probably generally agree that this is a laudable goal to move forward with this legislation, what are your ideas about user fees which would be used to support the trust fund that H.R. 4481 calls for?

Ms. BEATTIE. Congressman, I don't have any technical proposals for you. I would look forward to working with you on them and with the task force.

My own sense is that this is a fairly technical question of user fees and how they would be applied. But a very acceptable premise.

The Fish and Wildlife Service administers almost $500 million in user fees from anglers and hunters right now. Now, I do not mean to equate those with people who degrade water systems, but only to show that that is a principle that has been used in the past with great success. Those moneys are used for the restoration of fish and wildlife habitat. So it is a principle that is accepted. It has been used. It generates a lot of money, and I think it is an excellent way to go.

And by the way, the comparison I make when you say relatively pennies, a good comparison to make, I think, is to the amount of money that we are spending on regulatory ecosystem protection. The principle that everything runs downhill is one that is very applicable to what we are talking about here today. Our aquatic ecosystems indicate the success of all those efforts we are making uphill and upstream to protect our environment. And when you look at the amount of money we are investing, not to invest a little more to protect these aquatic ecosystems does not seem like good banking.

So I think the "user pays" principle is the one to pursue. I do not at the moment have a detailed proposal for you, but I look forward to working with you on it.

Mr. HAMBURG. Thank you. We look forward to working with you.

If I could turn to Mr. Mattole for a second here. Freeman, I hope that does not—if you do not want that to stick, it should not. I don't know if it will.

Mr. HOUSE. Never get away with it at home.

Mr. HAMBURG. I want to mine your expertise a little more. In terms of priorities for developing the strategy, are there some additional points that you would like to recommend for inclusion that

would guarantee that planning and program development be done at the watershed level rather than at this higher, so-called higher level of the Federal Government or State government?

Mr. HOUSE. Well, once watershed plans are developed it is hard for me to imagine a way that they would come back to Washington and be efficiently prioritized. There may be no way to avoid the creation of, if not regional councils, at least small regional staffs who might have the function both of prioritizing projects and plans within their region, and these same people might be able to or should be able to go out in the field and assist the local people in their work.

A good model for that that has worked well in the State of California is the way the Department of Fish and Game runs their salmonid enhancement programs. There is actually one staff person for something between a million and $2 million worth of projects a year, they must have a very difficult family life, but stays on the road all the time and does offer the kind of responsiveness and expertise that is needed.

Without that kind of interaction, you do not really have a solid way of evaluating what is going on, how good the plans are. The local people also need that kind of expert advice in order to improve their own work.

Mr. HAMBURG. What about the role local residents have to play in the more technical aspects of this program? What is your feel for that from having worked with the MRC?

Mr. HOUSE. Well, you know all of us who began the MRC began as college graduates in fields like English literature, sociology. We did not have a clue. What we found immediately, though, was that the expertise was there for us close by.

We had the good fortune, and even though we are a very remote watershed, we had the fortune to be within 100 miles of the Redwood National Park, which is a world class laboratory for this kind of work. The people there were more than willing to come all the way out to us and to train us in some essential skills, and it really did not take them a very long time. They trained us in geomorphology mapping techniques in a very few days. We had also at our disposal Humboldt State College at Arcata, which is full of experts in this kind of work.

I would suggest that almost any watershed group in the country has that kind of expertise nearby. Where that does not exist, I would assume the Fish and Wildlife Service would be able to provide those kinds of experts.

The important thing, I think, in terms of efficient use of public funds, is to trust the locals to develop the right questions. We were able to develop a fairly comprehensive inventory of catastrophic sources of erosion in the Mattole using the training from those sources and then employing 24 nonprofessionals, and we created a document which we were then able to send to every resident in the watershed at a cost of $50,000. I think for a remote agency to have accomplished the same task would have cost maybe five or six times that much.

Mr. HAMBURG. Right. Right. Do you have any fear that setting up this kind of national program is somehow going to compromise the energy on the local level? You know, I guess that could happen

if the attitude from the Federal Government was that somehow we are going to move in and take over, at least when the really important decisions have to be made.

Mr. HOUSE. Well, I have to be frank and tell you there is a fear of that out in the countryside. It is easy for me to recognize the intent of the bill to avoid that kind of a situation.

Mr. HAMBURG. Right.

Mr. HOUSE. I think in situations where organizations already exist that had been doing that kind of work, it is going to be fairly easy to work out those problems.

What I would see as a challenge for the task force is figuring out how to develop ongoing support for organizations in watersheds that do not already have them, support that does not have the sense of being run by remote bureaucracy. That is something that is a problem I would enjoy working more with you on.

Mr. HAMBURG. OK. Thanks Freeman, I really appreciate your being here.

Are we running into time problems or, Elizabeth, how are you need to be out of here by noon?

I do have a couple of other questions for Laurel and Beth, but I think if I submit those to you that you can answer them in writing and we can get them on the record.

Thank you very much, Mr. Chairman.

Ms. NORCROSS. Could I make a brief comment to something you said earlier and that is in regard to the level of interest in river restoration.

There are just right now, today, at 10 o'clock this morning, three hearings going on in the House regarding river-related issues on eight separate bills and an oversight hearing. And for that reason I will have to excuse myself because I need to go testify at one of those, but it is very encouraging that there are a number of bills which relate to river conservation.

And I was also remiss in saying at the first that the Norton and the Studds and Hamburg bills are very complementary to one another, and we have worked in the river conservation community, worked hard to make sure they are not competitive but rather they complement one another, and we would like all of those to pass. It would have a dramatic effect on river ecosystems if they did.

Mr. HAMBURG. Good. Thank you very much, Beth.

Mr. HOCHBRUECKNER. Thank you, Mr. Hamburg.

Question for Ms. Beattie. Would you characterize the present Federal approach as integrated or coordinated?

Ms. BEATTIE. It is my impression we could do a lot better on those qualities of our programs in terms of integration and coordination, Mr. Chair.

Mr. HOCHBRUECKNER. I see. I would like to thank this panel very much for your inputs. Any further questions for this panel? You will save them?

Mr. HAMBURG. I think we are kind of running out of time, Mr. Chairman.

Mr. HOCHBRUECKNER. If you would submit your questions for the record, Mr. Hamburg, we will submit them for the record.

Mr. HAMBURG. I will do so.

[The questions submitted by Mr. Hamburg and the answers supplied by Ms. Norcross can be found at the end of the hearing.]

Mr. HOCHBRUECKNER. I thank the panel for their cooperation and I especially thank Mr. Mattole.

The second panel will please come forward, Mr. Lyons, Mr. Houck, Mr. Archie, and Mr. McKenzie, please. Thank you very much, gentlemen. At this point the chair recognizes Ms. Furse for an opening statement.

STATEMENT OF HON. ELIZABETH FURSE, A U.S. REPRESENTATIVE FROM OREGON

Ms. FURSE. Thank you, Mr. Chairman. I really want to express my sincere appreciation to Chairman Studds for holding this hearing on these two very important bills. As you know, there is a crisis facing our Nation's rivers and streams. More than 80 percent of them are severely polluted, channelized, culverted and otherwise degraded. This enormous problem has significant economic, environmental and social consequences in the form of diminished public health, damaged ecosystems, degraded fisheries and foregone recreational opportunities.

I want to compliment Congressman Hamburg on his introduction of 4481, which I was proud to be an original cosponsor of. I have introduced the Waterways Restoration Act, H.R. 4289, with 21 original cosponsors, and I am happy to say to you that as of today, there are 37, including 10 colleagues from both sides of the aisle of this Committee.

I am also pleased to tell you that an identical companion bill was introduced in the Senate yesterday by Oregon senior Senator Republican Mark Hatfield. This underscores the broad bipartisan support that this legislation has.

The Waterways Restoration Act has a simple goal; it is to help citizens restore degraded streams and creeks in their own communities. My bill accomplishes this goal by creating a new technical assistance and grant program within the Soil Conservation Service's existing Small Watershed Program that was created by Public Law 566 in 1954.

The watershed program created by Public Law 566 has historically focused on structural projects in rural areas. My new program will fund nonstructural community-designed projects to restore streams, rivers and wetlands in both rural and urban areas.

This program will promote such projects as greenway parks, revegetation and removal of channels and culverts and it is indeed a bill about reinventing government. It does not call for new money or creating any new program in this time of budget constraints. It takes an existing program and retailors it to better meet the needs of the community. It brings the Soil Conservation Service into the 1990's and it broadens its constituency.

It is about environmental protection. We had a problem on the Tualatin River and the Columbia Slough in Portland. This bill would support communities cleaning up polluted waterways. It is about job training and creating new jobs. Environmental restoration is a growth industry and the skills that young people learn will prepare them for future environmental jobs. And it is about environmental justice, Mr. Chairman.

The Federal Government has historically overlooked low income and minority communities in awarding funding in its watershed programs. 4289 gives projects benefiting those neglected areas priority and evaluates projects on their social, environmental, as well as economic benefits. It is about helping communities help themselves. It creates a nonregulatory, nonmandatory voluntary program. It is, indeed, a funded Federal nonmandate. It allows communities to design and implement programs that they want. Both public managers and private property owners can apply for these programs. It is the result of a comprehensive, highly collaborative process which included the Soil Conservation Service.

Mr. Chairman, I would like to ask permission to enter into the record the list of the many organizations endorsing this legislation. They range from the Sierra Club and the Izaak Walton League, to the NAACP and the Minority Environmental Association. The Society of American Foresters and the National Watershed Coalition both have also endorsed the bill in concept. They recognize its enactment will help broaden the constituencies supporting the continued existence of overall Public Law 566 programs.

Mr. Chairman, as an aside, I would like to say that every community has individuals who make all the difference in the health of that community. They are what I would call community treasures. I am proud that one of Oregon's community treasures, Mike Houck, is here to testify on H.R. 4289. Without him there would be no such legislation. He brought the idea to me and he has helped me all the way through.

I look forward, Mr. Chairman, to working closely with you and other members of this Committee on prompt passage of H.R. 4289 and I would like to thank Secretary Lyons for taking his valuable time to testify here today. Thank you, Mr. Chairman.

Mr. HOCHBRUECKNER. Thank you, Ms. Furse.

At this point we will hear from Jim Lyons, the U.S. Department of Agriculture. Mr. Lyons.

STATEMENT OF JAMES R. LYONS, ASSISTANT SECRETARY FOR NATURAL RESOURCES AND ENVIRONMENT, U.S. DEPARTMENT OF AGRICULTURE

Mr. LYONS. Thank you, very much, Mr. Chairman. I want to thank you for the opportunity to discuss the Administration's views regarding H.R. 4289, the Waterways Restoration Act of 1994.

I want to commend Congresswoman Furse for this bill because it makes an important contribution in my mind to the debate over the direction and goals of this Nation's natural resource policies, specifically related to waterways. The Administration supports the principles contained in the bill which are designed to emphasize nonstructural, community-based projects to restore waterways.

The bill takes strong steps to erase some of the historical distinction that Federal programs have made between urban and rural communities, high income and low income populations, and economically depressed and economically advanced cities and regions. It is also critical that ecosystem principles be incorporated into our natural resource programs and, of course, the bill reflects those concepts well.

For example, the bill embodies the Administration's focus on ecosystem-based management. Streams and rivers do not recognize political boundaries. Their health is dependent on restoring both their urban and rural components. As you know, Mr. Chairman, all of us live downstream from somewhere. Urban creeks and streams have also been the most frequent victims of pollution, channelization and other degradation, but when restored and protected, they can provide havens of beauty within inner-city neighborhoods.

Waterway restoration, as encouraged under this legislation, could provide a cost-effective alternative to structural projects and also enhance such important attributes as fish and wildlife habitat and recreation opportunities. By giving priority for funding to stream restoration projects that benefit low income and minority communities, areas that are deserving of much greater attention from the Federal Government, the Waterways Restoration Act would also assist implementation of President Clinton's recent executive order on environmental justice by assisting low-income, disadvantaged communities in resolving environmental problems.

Additionally, under this bill, priority would be placed on funding projects that train and employ at-risk youth in community service, as the President called for in encouraging the enactment of the 1993 National and Community Service Trust Act.

The Waterways Restoration Act would amend the Soil Conservation Service's existing authority for the Small Watershed Program. In the last 10 to 15 years, the Small Watershed Program has gone through a metamorphosis and shifted emphasis to more environmentally sensitive ways to address flood control and watershed protection needs in an ecological manner. However, the original perception of the program's high impact on the environment remains, and I can assure you, Mr. Chairman, that this is a perception that we seek to correct.

The Small Watershed Program currently requires that at least 20 percent of the total benefits of each project relate directly to agriculture, including rural communities. With this restriction removed, the Small Watershed Program can serve as a tool for solving local urban and rural waterway restoration problems.

The Waterways Restoration Act also proposes to broaden the focus of the Soil Conservation Service's Small Watershed Program by adding a grant program to fund community-based environmental restoration projects. If Congress chooses to continue to appropriate resources to the Small Watershed Program, riparian habitat restoration, wetland restoration, water quality, and Watershed Management Act are all activities that should and could be funded.

I would point out, Mr. Chairman, unfortunately, the current agriculture mark in the House and Senate would provide for a 65 percent cut in the Small Watershed Program in fiscal year 1995 and would severely impact our act to implement this authority.

The Soil Conservation Service has over a half century of experience working with private landowners in promoting conservation treatment on uplands, which is critical to the overall water quality of the waterway ecosystem. It has a long history of working with local sponsors in achieving local objectives in solving natural resource problems. With this agency's delivery system of providing

technical assistance through the State offices and local conservation districts, the Soil Conservation Service, we believe, is the appropriate agency to administer a waterways restoration program.

I certainly appreciate having the opportunity to appear before you, Mr. Chairman, to offer the Administration's views.

If I might, Mr. Chairman, although we were not invited to testify on H.R. 4481, the National Aquatic Ecosystem Restoration Act, I would like to offer a few comments and then follow up with more written detail.

I, too, want to compliment Congressman Hamburg, Congresswoman Furse, Chairman Studds, Ms. Unsoeld and others who are cosponsors of this important legislation. I want to offer three brief comments, and as I said, provide more detail a little later on.

First of all, I want to point out that in fiscal year 1993 the U.S. Forest Service expended $65 million for watershed restoration projects. In fiscal year 1994, we expect to expend $100 million. The Soil Conservation Service has expended roughly $100 million each of those two fiscal years. The kinds of projects we have been involved in includes riparian areas restoration, revegetation, culvert repair, road maintenance, road surfacing and more and more the elimination of existing forest roads.

We currently work cooperatively with the Fish and Wildlife, EPA, the National Marine Fisheries Service and other agencies that are designated as part of the task force in H.R. 4481. Unfortunately, the Forest Service is not designated as a member of the task force nor participants in developing the restoration strategy and we hope we can address that slight oversight.

In addition, the bill would designate the Director of the Fish and Wildlife Service to chair the task force and be responsible for the development of the strategy. I would simply offer, based on my experience in working in the Pacific Northwest and attempting to pull together an interagency ecosystem strategy for protection of old growth forest, which I think is a fairly successful model for interagency cooperation, that something more akin to a rotating Chair might be the appropriate way to structure the organization for the watershed restoration efforts that are designated by H.R. 4481.

I think the advantage to that is it eliminates the potential for interagency rivalries and jurisdictional squabbles which unfortunately occur more frequently than I would like to see. It might help us move more quickly to address the priority set out by the bill.

Finally, I think it is important that the bill clarify the funding mechanisms and the role counseling would play in making grants for economic restoration projects so as to be certain not to create a bottleneck for funding to address some high priority issues.

And by that, Congressman, what I would suggest is that we clearly determine what role each agency would play, and continuing to work with the existing partners we have in funding the kinds of projects that we do, working either cooperatively with our other Federal partners or individually with organizations we work with on the ground. I commend you for the bill.

[The statement of Mr. Lyons can be found at the end of the hearing.]

Ms. FURSE. [Presiding.] Thank you Mr. Lyons. Mike Houck with the Urban Streams Council. Welcome to a fellow Portlander, Portland, Oregon. You can begin your testimony.

STATEMENT OF MIKE HOUCK, URBAN STREAMS COUNCIL

Mr. HOUCK. Thank you. I want to express my sincere appreciation for the opportunity to testify here today, on behalf of both the Coalition to Restore Urban Waters (CRUW), and our own role, Urban Streams Council, which is based in Vancouver—I want to stress that that is the Vancouver-Oregon metropolitan region—by the grassroots citizens organization which was established to focus attention on the unique challenges and opportunities associated with the restoration of degraded urban aquatic ecosystems and the communities which surround them.

And while I am very flattered by your opening comments, I would point out, and you well know, there are dedicated individuals in literally all the metropolitan regions which have cooperated in bringing H.R. 4289 to where it is today. So thank you for your compliment, but there are lots of other folks, some of whom are in the room, who share that.

I was asked to specifically address six issues associated with H.R. 4289. The first is the status of the Nation's aquatic ecosystems and actually I think I will, in the interest of saving time, simply point out the obvious and that is everybody has made that point already this morning that our Nation's waterways and watersheds, both rural and urban, are in need of restoration. That is beyond dispute.

H.R. 4289 will provide one tool to address that need and it is a piece of a larger puzzle. There are no silver bullets out there and we view this as an important compliment, as other folks have pointed out today, to the other measures that have been introduced.

I was also asked to give some examples of successful and unsuccessful projects. H.R. 4289 is modeled as one of the most successful urban waterway restoration programs in the United States. The State of California's Department of Water Resources Urban Waterway Restoration Program has had a successful track record over the past ten years; and, actually, a former employee and CRUW member, who has been intimately involved in developing that program, is with us today. Ann Riley is in the audience, and I want to submit for the record a description of that very successful program after which the provisions in 4289 are modeled, and also an article entitled, "Overcoming Federal Water Policies, the Wildcat-San Pablo Creek Case."

I have also included information from a publication by the National Park Service, the Association of State Floodplain Wetland Managers, which is a series of case studies, and I guess I would just point out one example. Wildcat and San Pablo Creeks in California, in the bay area, is a community-based example of a community-based restoration program.

What began as a single purpose, a U.S. Army Corps of Engineers project, evolved through local citizen involvement into a multi-objective project, which incorporated restoration of the natural stream channel, reduction of sedimentation, protection of endan-

gered species, development of a regional trail, institution of an environmental education program for a nearby school, and reduction in maintenance costs.

And, actually, I would like to do something dangerous and diverge from my written testimony and point something out that has not been brought up today. We should be concerned about the extinction of salmon, the extinction of aquatic species. We should also be concerned about the extinction of experience.

Robert Michael Pile has written a book I would commend to you called, "The Thunder Tree." It describes his growing up as a youth in the city of Denver and his experiences as a youth and what it meant to him later as an adult growing up on the Hiline Canal. In his book he makes the thesis that everybody needs a ditch. In fact, the urban waterways that we are describing are frequently described as ditches; and, therefore, there is a rationale for filling them, for culverting them and for not paying attention to their ecological health.

Bob makes the argument that we need to be just as concerned about children who lack experience, close personal experience with nature and their own immediate radius of reaches. He describes it, people who do not know, do not care; people who do not care, do not act. I think we need to be concerned about that sort of extinction, that extinction of experience as of plants and animals.

I was also asked to provide some common elements of successful projects. I would point out that good, well-designed, locally based, nonstructural approaches tend to be multi-objective in nature. That is, they recognize the multiple values of the resource, but also the multiple benefits that can come from a project. They are community-based, low tech, lower cost both in terms of installation and maintenance. They generate local jobs, and they are definitely cooperative and proactive in nature.

By contrast, large-scale structural engineering projects are typically, not always, but typically, top-bound, agency-driven and costly to construct and maintain. Highly engineered flood and bank stabilization projects can cost as much as $5 million per mile. The State of California's restoration grants program, by contrast, after which H.R. 4289 is modeled, has averaged $30,000 per project and does not exceed $200,000 for any single project.

I cannot believe I went over my testimony a zillion times and I am still going to run short.

I guess I would like to close by saying that I view H.R. 4289 and the other proposals before you as elements of an overall strategy to incorporate urban waterways as part of the urban infrastructure. We need to look at these waterways, just as we look at sewers, at roads and utilities, and incorporate those into our thinking. And I would like to point out that this is very complementary to Mr. Lyons' urban initiatives and, in fact, Director Beattie is not aware of it probably, but in Portland, Oregon, the regional office has been actively involved in our own metropolitan green spaces program. And at least half of the money from that program has gone into local restoration projects in the four county regions.

I would close by saying we believe the Soil Conservation Service, because of their experience in working on the ground with property owners, is certainly the appropriate agency, and we have spent two

years shopping this legislation around to multiple parties and we feel very comfortable with the language as it is. Thank you very much.

[The statement of Mr. Houck can be found at the end of the hearing.]

Ms. FURSE. Thank you and all your written testimony will be introduced in full into the record.

Mr. Reggie Archie is with the East Bay Conservation Corps. Welcome, and we look forward to your testimony

STATEMENT OF REGGIE ARCHIE, EAST BAY CONSERVATION CORPS

Mr. ARCHIE. Thank you much, Ms. Chair. I am going to try to take this in a little different direction. There have been readings all morning. I am here to paint a picture of what the passage of the bill, H.R. 4289, means to the urban lower income areas.

Throughout its history, the East Bay Conservation Corps has always aimed to foster strong positive directions in urban work within these communities. Youth Corps are extremely well suited to working on large service projects such as urban creek restorations which require energetic teams of workers.

By focusing on high need urban areas, the Waterways Restoration Act will enable the East Bay Conservation Corps and local corps and many other local conservation service corps to extend more crews and youth and young adults to work in their communities and, thus, strengthen the social and economic fiber of the overlooked neighborhoods. This placing a high priority on accomplishing projects in low-income and ethnic minority communities ensures a powerful focus on environmental justice, a focus which we firmly endorse.

All right. The passage of the bill would allow us to directly recruit from these areas. What this means is, one, it is jobs. We just recently finished off a project on Vicente Creek where there were 6,000 Corps member hours and 2,000 volunteer hours involved. So we are looking at probably 40 percent of our population gaining from this bill. By passing this bill, we are gaining, in terms of hiring potential, workers from these areas.

There is a lot of education that is involved in any creek restoration as well as bringing the community together. Some of the education that is involved around creek restoration is the building of crib walls, rock structures, going in and revegetating these areas, learning about native plants and creating habitats. Some of the better points that I have gained in the nine years I have been at the Corps is the involvement that it brings in the community.

By giving us a chance to go in and not only be a fix in the situation that is happening today, but to now give the youth something to do besides selling drugs, now we can put a tool in their hand. We can put a stick in their hand and say go plant this thing, and in terms of seeing that happening, you find that the communities, themselves, automatically want to join in and take a hand and take over the communities.

On these creeks, as well as when we go in and recruit from these neighborhoods, you automatically get a situation where you build—where people in the community go back and water these trees and

go back and look at the creeks and water these plants; that the youngsters that are growing up have positive role models to look at.

When I first started at the Corps myself—and I am a product of some of these local underdeveloped urbans—when I first started at the Corps nine years ago, I came from a poor basin background. Being involved in teaming with friends at urban creek, I was able to expand my horizons on what life was really about. The creeks definitely have impacted my career, where I had a chance to go back in the water to figure out what I am about. Without the waterways and the creeks, we are destroying our fishery habitats and things that make the world go around.

Another point I want to stress is the community involvement. There are several ways that the creeks have impacted our communities. One is by going in and soliciting information on what the community likes themselves, what they would like to see in terms of placing structures around the community; two, we are involved now, or Corps members are involved in training at local colleges, California State, Berkeley, University of California, throughout the community.

With that point, and kind of aiming at what I would like to entertain as questions toward the end, the passage of this bill creates jobs, and I want to really, really point out my personal opinion of being here is that I am a product of the system, and if somehow that I can paint this picture and take questions later, we have graduated in terms of the last several months over 20 CRUW members in the GED program.

Without the passage of the bill, money to support these creeks and things like that, those are 20 or 30 people we would not have had a chance to touch. So it is very important to me to highlight the importance of the passage of the bill, H.R. 4289. Thank you.

[The statement of Mr. Archie can be found at the end of the hearing.]

Ms. FURSE. Thank you, and we will have questions for all of the witnesses.

Mr. Don McKenzie is here with the Wildlife Management Institute and we look forward to your testimony.

STATEMENT OF DON MCKENZIE, CONSERVATION POLICY COORDINATOR, WILDLIFE MANAGEMENT INSTITUTE

Mr. MCKENZIE. Thank you, I am Don McKenzie, Conservation Policy Coordinator, with the Wildlife Management Institute. WMI appreciates this opportunity to support H.R. 4289, the Waterways Restoration Act of 1994. The Institute is a private, nonprofit scientific and educational organization staffed by professional natural resource managers. We have been dedicated to the restoration and improved management of wildlife and related natural resources since 1911.

We believe the watershed approach to managing natural resources conceptually is the best perspective from which to identify water-related resource problems as well as to plan and implement solutions. However, we believe equally strongly that the implementation of a Soil Conservation Service's Small Watershed Program

has undermined the merits of the concept of watershed management over the last 40 years.

The Public Law 566 program has several sound elements that embody concepts of watershed management. It provides Federal cost-share funds for matching by local governments. Besides Federal technical assistance to those local governments for planning and implementation, it fosters competitive bidding for funds, in theory awarding funds to the best projects.

However, it usually has been implemented in ways harmful to fisheries, wildlife and aquatic ecosystems. WMI has been monitoring the Small Watershed Program for decades. Most of the time our involvement has been to oppose funding and projects in order to minimize degradation of waterways and wetlands that too often has resulted. Ironically, that opposition always has been made while recognizing that the program has potential to achieve environmental, as well as societal benefits.

The record of accomplishment of the program is illustrative. Flood prevention by damming and channelizing naturally functioning streams and rivers and isolating them from their floodplains by levees is the primary purpose of more than 1,300 Public Law 566 projects. Drainage is the primary purpose of more than 300.

On the other hand, watershed protection using nonstructural land treatment measures is a primary purpose of only 230 projects. Fish and wildlife is a purpose of only 96 projects, and water quality is the primary purpose of only about 41. The program has channelized over the years 11,646 miles of streams and rivers in 47 States; 3,290 miles of channels remain approved in existing plans in their $1.2 billion backlog. More than 8,000 dams have been constructed by the program; another 3,500 await funding. The program itself has drained or made possible the drainage of millions of acres of wetlands.

The end results of flood control activities conducted under Public Law 566 in general have been continued flooding, increased flood damages, continued taxpayer expenditures for disaster relief, and continued taxpayer expenditures for replacement and maintenance of structures and dysfunctional waterways that usually provide reduced fish and wildlife habitats. Public Law 566 literally is one of the main reasons for the need for all the aquatic ecosystem restoration bills we have been discussing here today.

There are several reasons for its poor environmental record. Too much emphasis has been placed on stimulating marginal, high-risk, production on floodplain lands of agriculture commodities that already are in oversupply because of other existing agriculture subsidies. Cost-share rates always have been and still are legislatively weighted toward short-term, high-impact structural activities and away from long-term solutions. Local project sponsors possess too much decisionmaking authority and too little Federal guidance on acceptable and unacceptable activities. SCS generally has been extremely reluctant to interfere with local sponsors by criticizing or rejecting poor project decisions.

SCS, to its credit, recently has begun to acknowledge these problems and initiate administrative action to solve some of them. For example, water quality is becoming a primary purpose of more and more projects conducted under this program in the last few years.

However, WMI believes administrative actions alone are not sufficient to ensure this program and its proponents are deterred from quick-fix structural projects in the future.

Because of the deeply entrenched culture of Public Law 566 supporters, WMI's first preference, frankly, would be to make a clean break from the past by eliminating the program entirely and replacing it with a new environmental program. However, if the existing program is to be retained and improved, we believe that legislative changes are needed to ensure that most of its harmful elements are permanently eliminated or minimized, leaving the positive side of the program to flourish. Toward this end, we believe H.R. 4289 offers sound, constructive solutions to many of the program's long-standing problems and we commend you, Congresswoman Furse, in bringing this bill forward.

Section 3 of the bill strikes the existing requirements that at least 20 percent of the total benefits of the program be directly realized by agriculture and rural communities, thus making urban and suburban properties eligible. This country today is experiencing chronic overproduction of most subsidized agriculture commodities and increasing scarcity of functioning wetlands and waterways. In this scenario, there is no justification for continuing to operate this program as an additional subsidy that stimulates further overproduction on marginal, flood-prone lands of subsidized agricultural commodities at the expense of valuable public resources.

Section 4(m) sequesters not less than 20 percent of the total amount appropriated to Public Law 566 for the environmental restoration purposes of H.R. 4289. This provision assures that the new restoration program will be used.

One of the most important elements of the bill is the elimination of structural projects from eligibility for funding. Finally, H.R. 4289 creates a needed oversight mechanism to ensure only environmentally and economically sound projects are considered for funding. An interdisciplinary team in each State would have authority to review projects, make recommendations and evaluate them for further review if and when necessary.

WMI has only a few recommendations for improvements. First, we believe it is critical that the Federal cost-share rates be revised to foster environmentally sound projects and discourage high-impact activities.

Second, we believe Public Law 566 should be amended so that the Stream Obstruction Removal Guidelines, which have been produced by the American Fisheries Society, the Wildlife Society and the International Association of Fish and Wildlife Agencies, are to be used in most instances instead of channelization when projects are conducted to restore stream flow capacity to reduce flooding.

With that my time is out and I will stop with your assurance that the written part will be inserted into the record.

Ms. FURSE. Without objection.

Thank you for your testimony.

[The statement of Mr. McKenzie can be found at the end of the hearing.]

Ms. FURSE. I do have a question for each of the witnesses and then make sure that Mr. Hamburg has time to ask questions.

Secretary Lyons, first off, I want to thank you so much for being here to testify on this bill. In your opinion, if H.R. 4289 had been enacted before the President developed the budget for fiscal year 1995, how might that have affected the Administration's decision about the future of Public Law 566?

Mr. LYONS. Well, my hope is, Congresswoman, that the proposed changes in the Public Law 566 Program that would be provided by this legislation would encourage certain elements within the Administration to support funding. Unfortunately, I think we live with the legacy of the past, which Don has more than adequately laid out for us.

I would point out that we have undergone a significant shift in focus and one of the things I have learned in my position as Assistant Secretary is you inherit a lot of baggage and its takes a while to get these things turned around.

Nevertheless, I would point out we are currently placing a great deal more emphasis on water quality projects and the use of nonstructural approaches to address watershed concerns. In fact, we have 183 watershed protection-only projects currently on the books at a value of about a $100 million. In addition, we are moving quickly to eliminate the backlog of watershed projects that would involve structural work. We have begun a review of all the projects that are on the books and we have eliminated projects that would have called for up to 1,800 miles of channels through the review we have conducted over the last six months.

In short, the kinds of changes you propose in your legislation would help us to move toward the nonstructural approaches which are consistent with our current philosophy and I think are reflected by the Administration's recent report on floodplain management, which places focus on the use of nonstructural approaches and on natural wetlands to address floodplain management issues. I would point out that Secretary Espy is a cochair of the Floodplain Management Task Force.

Ms. FURSE. Thank you. Mr. Houck, some argue that expanding what is currently a rural program to include urban areas is simply stealing money from rural agriculture areas. How do you respond to that claim?

Mr. HOUCK. Well, I do not know about the rest of the country, but in Oregon, unfortunately, there has developed a fairly significant schism between the urban folk and the folks out there in the rural communities. And, in fact, I think one of the greatest strengths of this program is that it provides not only for restoration in both urban and rural watersheds, but encourages the formulation of watershed councils.

I guess I would respond to your question by pointing out a local example, the Tualatin River, which you referred to earlier, which is a major water quality issue; limited streams in the metropolitan region. And I agree, one of the major reasons for pursuing these restoration projects is not only to improve all the other beneficial uses of those waterways, but to improve water quality.

The Tualatin River flows through rural, agricultural forests, suburban and urban situations, and I think the hallmark of this legislation, the thing that excites me the most, is it encourages rural folks to get together on these councils and actually talk through

these problems and try to get at some of the social issues associated with the perceived us-and-them attitudes that at least exist in Oregon and I am sure throughout the rest of the West, and maybe nationwide.

Ms. FURSE. Thank you.

Mr. Archie, some may argue that the types of jobs from this program are just temporary, low-paying summer jobs. Can you tell me, based on your own experience, what types of training and job opportunities are provided under the Corps restoration work?

Mr. ARCHIE. OK. Number one, what happens with the East Bay Conservation Corps, we are a job training facility and we try to keep a crew member around for three or four years. The way the Corps is designed, one, we have an education component which enables one to get his or her GED. That is one part of education.

The second part, where we are actually going out and doing the work we do in the creeks, the rivers and streams, restoration itself, by learning the different techniques to clear water, plant vegetation, and things of that sort enables one to hook up with systems—we have a system called Alameda County Flood Control. Our Corps members usually go into internships with these people by the things that we learn on the creeks.

These are year-round jobs. They are not like a summer situation at all. These are real jobs. These are real people. So, again, I want to commend the passage of the bill 4289. It is definitely high on our list of keeping and attaining our goals.

Ms. FURSE. Thank you. I am also held to the five-minute rule, so I will quickly ask Mr. McKenzie, has there not been an emphasis shift in Public Law 566 in your view to nonstructural projects?

Mr. MCKENZIE. Absolutely, there has been in the last few years, as Mr. Lyons detailed a couple of minutes ago. However, in contrast to some claims by people close to the program, the structural component of the program is not as inactive as they would have us believe.

For example, some of you may remember about a year ago, during the new Administration's attempt to push an economic stimulus package, this program would have received in the neighborhood of $50 million for quick spending to create jobs. As a result of that potential windfall of money, the local sponsors from around the country pushed forward their projects that had been sitting on the shelves, many of them for 20 or 25 years, waiting for funding.

A high percentage of these projects were strictly channelization and dam building projects. That, to me, indicates a strong residual component of structural mentality existing in that program, which I think your bill would do a lot to correct.

Ms. FURSE. Thank you. Mr. Hamburg, you have a few questions for the witnesses?

Mr. HAMBURG. Thanks, just a couple of things. One question I have relates to your comments, Mr. Lyons, on H.R. 4481, and I am sure you have seen the two sections of the bill where it discusses the composition of the task force and the composition of the council. And, of course, on the task force, which will design the long-term strategy, the bill sets out the short-term—at least the short-term goals for the bill, but the task force is responsible for developing the long-term strategy and end goals.

The composition will include members of all Federal agencies that are concerned with restoration activities. That certainly would include USDA and the Forest Service, would it not?

Mr. LYONS. I would hope it would. I guess what I am arguing for is a strong and coequal role between the Departments of Agriculture and Interior, EPA and the Corps so as to ensure that the kind of close cooperation we see now occurring in the Northwest continues.

Mr. HAMBURG. And also with respect to the membership on the National Aquatic Restoration Council itself, which will make the decisions basically on funding allocation to various local groups, it calls for representation by the Chief of SCS, which, of course, is the same Department as you, but not the same division.

Mr. LYONS. Right.

Mr. HAMBURG. That is something that we have received comment on from USDA and that may be altered. There is no provision in the bill that calls for any particular member to be the Chair. The council is a 15-member group. I am being advised on the council the Fish and Wildlife Service is the chair of that, and you are saying that perhaps that should be a rotating chair.

Mr. LYONS. I think, again, what has helped the cooperation we have seen in the Northwest has been the shared responsibilities among the Ecosystem Restoration Team that we have out there now, and I think there is some benefit to maintaining that kind of working relationship. And a rotating chair is a way to ensure that all the players who have very active programs can share in the responsibility for implementation of the task force's overall goals and objectives.

Mr. HAMBURG. I had a couple of questions for Mr. Archie.

The group that you work with, the East Bay Conservation Corps, what is their geographic jurisdiction?

Mr. ARCHIE. Our area? It is probably about a 100-mile radius. We go from what we call the East Bay area, we go from Contra Costa County and Alameda County. Probably about 150 miles geometrically. And we ourselves have over 150 Corps members.

We are definitely a major impact on the city of Oakland in terms of the water. We believe in bringing back and maintaining our communities by having projects such as creek restoration and doing-the-river restorations. When we are out there we are highly visible people, in terms of what our locals get a chance to see. We draw from an area called Hayward, where we have satellite centers also down in the southern part of the county.

Mr. HAMBURG. Given the cutbacks that have happened with State support for the Corps, have you been able to hold the size of your organization at 150 or have you had to cut back?

Mr. ARCHIE. We recently went through some problems with budgeting. And it is funny, we just finished a contract with DWR, which I mentioned earlier. We had over 6,000 Corps member hours and 2,000 volunteer hours on that, which is a major blow. Without having a project like that, we are potentially losing a team of three crews. So, yes, we have been kind of in a shuffle.

Mr. HAMBURG. I do not know if this is your part of the operation, but approximately what is the cost to the State for a Corps member to be in the program, say for one year?

Mr. ARCHIE. I can put it in terms of a crew size probability for you, if you want me to break it down.

Mr. HAMBURG. OK.

Mr. ARCHIE. A crew of six or eight participants is probably $150,000.

Mr. HAMBURG. You said six to eight.

Mr. ARCHIE. Six to eight participants is probably $150,000 for the entire year.

Mr. HAMBURG. For the whole year.

Mr. ARCHIE. Yes, and that is working, education and experience.

Mr. HAMBURG. Has there been an attempt to put value on the work done by those people for that amount of investment of taxpayer dollars?

Mr. ARCHIE. Being a front runner on creek restoration, I do reports where I have to break down Corps member hours in terms of how many hours we put on building crib walls for the creek for DWR, so I am pretty sure there is a breakdown that I could comment on just the creeks, because I have to break those hours down and submit them to DWR on a monthly basis. And we are usually putting in 500, 600 some hours based on that money.

Mr. HAMBURG. I would venture that the taxpayers get a very good deal on these kinds of programs from my vantage point.

Congresswoman Furse asked if these are dead-end jobs and you talked about people getting their GED's and being able to move on. Do you have any stories you could tell, very briefly, about people who have moved from Corps experience to other jobs in the resources area?

Mr. ARCHIE. Yes. In particular, when we first started on Vicente Creek, it was a little over a year and a half ago. I had two Corps members on that particular crew. And the Vicente Creek, if you guys remember the fire storm in the Oakland area, the first phase of that project was to go in and remove all the burned, dead trees and a lot of debris.

There were two Corps members that specialized in tree fallings that were going in to do the restoration. They are employed by the city of Oakland now. So they went from $4.25 to $17 and $18 an hour, and they have been there for two years. And we were looking at possibly some of our members being hired within the next couple of months.

Mr. HAMBURG. I want to say I am a big supporter of the Conservation Corps and anything that we can do at the Federal level to enhance that program and encourage that program and programs like it throughout the country. I think it is a very excellent investment of tax dollars. Thanks.

Ms. FURSE. I want to thank the witnesses for coming a long way and for their dedication to the streams and waterways of this country. The hearing is adjourned.

[Whereupon, at 12:05 p.m., the Subcommittee was adjourned, and the following was submitted for the record:]

ORGANIZATION ENDORSERS OF H.R. 4289, THE WATERWAYS RESTORATION ACT

Coalition to Restore Urban Waterways
National Coalition to Restore Aquatic Ecosystems
Association of State Wetland Managers
National Association of Service and Conservation Corps
National Wildlife Federation
Sierra Club
World Wildlife Fund
Environmental Defense Fund
Trust for Public Lands
American Rivers
Pacific Rivers Council
Wildlife Management Institute
River Network
Izaak Walton League of America

TESTIMONY OF MOLLIE H. BEATTIE, DIRECTOR, UNITED STATES FISH AND WILDLIFE SERVICE, BEFORE THE SUBCOMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES OF THE HOUSE MERCHANT MARINE AND FISHERIES COMMITTEE, REGARDING H.R. 4481, THE NATIONAL AQUATIC ECOSYSTEM RESTORATION ACT OF 1994

July 19, 1994

Mr. Chairman and members of the Subcommittee, I am pleased to be here today to testify on behalf of the Department of the Interior and the Fish and Wildlife Service concerning H.R. 4481, the National Aquatic Ecosystem Restoration Act of 1994.

I commend Mr. Hamburg and the other co-sponsors of the bill for their insight in recognizing the importance of restoring our nation's degraded aquatic ecosystems. I appreciate the opportunity to appear before you today to discuss this important piece of legislation. The Administration supports the intent of H.R. 4481 and would be happy to submit a report to the Committee prior to markup of this bill suggesting specific amendments to the bill.

Aquatic ecosystems provide a number of critical functions for humans and the environment. They recycle nutrients, purify water, attenuate floods, and provide habitat for plants, fish, and wildlife. In addition, they provide extensive recreational opportunities. Recreational fishing activity alone supports $69 billion in total economic output and sustains an estimated 1.3 million jobs. Recreational hunting and non-consumptive uses of aquatic ecosystems also make substantial contributions to our

national economy.

As you know, degradation of the Nation's aquatic ecosystems and loss of aquatic biodiversity have reached critical levels. Entire hydrologic systems and natural diversity of all forms of aquatic and riparian species are at risk.

The Environmental Protection Agency estimates that nearly one-fourth of our Nation's 3.25 million miles of streams are affected by municipal or industrial effluents. It is estimated that we have destroyed roughly 117 million acres of wetlands since the late Eighteenth Century. Nearly half of the animals on the federal list of threatened and endangered species are aquatic. In the past 100 years, at least 27 species and 13 subspecies of North American fishes have become extinct, primarily as a result of habitat loss or alteration. More than 100 other species, subspecies, or populations of fish are now listed as threatened or endangered.

Declining fish populations have resulted in significant financial losses for the commercial and recreational fishing industries. The decline of Atlantic coast striped bass populations cost an estimated 7,500 jobs and $220 million between 1974 and 1980. Economic losses in the Great Lakes fisheries are estimated at $1.4 billion annually. Commercial harvest of Pacific salmon in Washington, Oregon, and California, dropped from $200 million in

1980 to $120 million in 1990.

These losses highlight the need to restore our degraded aquatic ecosystems. Perhaps our greatest needs include protecting and restoring habitat for native flora and fauna, controlling non-point source pollution, and enhancing the natural purification capabilities of our aquatic ecosystems. A coordinated, national approach is required to address these needs.

Prior to introduction of H.R. 4481, Congress addressed the need for aquatic ecosystem restoration by passing a variety of basin-specific legislation such as the Great Lakes Fish and Wildlife Restoration Act, the Central Valley Project Improvement Act, the New England Fishery Resources Restoration Act, the Klamath River Basin Fishery Resources Restoration Act, and the Lake Champlain Special Designation Act. Each of these efforts have recognized the necessity of restoring the affected resources, but they have focused on local problems. The most successful programs are those that received strong financial support and have developed effective partnerships among Federal, State, local, and tribal governments and the private sector. Still, Federal environmental policy has not devoted sufficient attention to declining aquatic ecosystems nationwide. For this reason, an aggressive, proactive approach, such as that provided by H.R. 4481, is now needed.

From our perspective, the introduction of H.R. 4481 is timely, as

the Fish and Wildlife Service (Service) has recently embarked upon an Ecosystem Approach to Fish and Wildlife Conservation and approved a new *Action Plan for Fishery Resources and Aquatic Ecosystems*. The focus of our ecosystem approach and our action plan is the building of partnerships with other management entities and with private interests to better leverage our collective abilities. We believe that an ecosystem approach will help us meet ever-increasing fish and wildlife resource challenges now and in the years to come. An ecosystem approach will only succeed if it has the full support of all the appropriate cooperators. Without strong partnerships, the effectiveness of independent initiatives will continue to be limited.

The cosponsors of H.R. 4481 recognize this need and emphasize a grass-roots approach to aquatic restoration. The bill supports local, tribal, and State aquatic ecosystem restoration efforts by providing technical expertise and funding to such entities to achieve effective restoration where it is most needed and will be most beneficial. The bill also requires coordination among existing Federal programs and policies relating to aquatic ecosystem restoration.

Another important aspect of this legislation is its comprehensive and integrated framework for directing long-term national aquatic ecosystem restoration activities. The focal point of this

legislation is the development of a National Aquatic Ecosystem Restoration Strategy. The Department believes that a coordinated Strategy is needed and welcomes the opportunity to lead efforts to develop and implement this Strategy.

We note however that authority to implement the Strategy, appoint Council members, and chair the Council should be vested in a cabinet officer, rather than in a bureau chief, such as the Director of the U.S. Fish & Wildlife Service. The Administration will also submit in its report, suggestions for perfecting the makeup of, and relationship between, the Council and the Task Force. More generally, the Justice Department advises that making a cabinet officer the official who appoints Council members is necessary for the bill to be consistent with the Constitution's Appointments Clause. Similary, the Council members from the Departments of Agriculture, Defense, and Commerce should be appointed by the Secretaries of those Departments.

In addition, with regard to the Task Force, we suggest that the Environmental Protection Agency, the U.S. Department of Agriculture, the Bureau of Land Management, National Oceanic and Atmospheric Administration of the Department of Commerce, the Army Corps of Engineers, Tennessee Valley Authority, and the Bureau of Reclamation be identified as member agencies of this Task Force, with other appropriate Federal members to be

designated by the Chair of the Task Force. Including these agencies will facilitate coordination of existing programs and policies.

H.R. 4481 creates a National Council to review and select restoration projects for funding that are consistent with and supportive of the Strategy. The Service believes that this is a reasonable approach to project selection. A local or regional approach would have the benefit of improved responsiveness to local needs. However, such an approach would also require establishing parallel review systems that might create inconsistencies in application of the Strategy. Requirements that restoration projects include local cooperators and cost-sharing would insure responsiveness to local needs.

Many Federal agencies and programs are now taking watershed approaches. For instance, the Administration is pursuing watershed and ecosystem approaches in the context of the Clean Water Act reauthorization. We understand that the Committee is working to ensure that H.R. 4481 would complement, rather than duplicate, the Clean Water Act. The Administration welcomes the opportunity to work with you on recommendations we might have towards this end.

The Service has a long history of working with State, local, tribal governments, private interests, and other Federal

partners. For example, the Service is engaged in several major restoration efforts in California, including the Klamath River Basin, the Chehalis River Basin, and the Central Valley. The Service, along with the Bureau of Reclamation, the National Park Service, the U.S. Forest Service, and the Bureau of Land Management is working cooperatively to determine the effects of pulsed flows on the out-migration of fish in the Klamath Basin. This information will be invaluable for future management decisions. The Service is also nearing completion of a ten year study assessing the flow needs of the Trinity River, a major contributor to the Klamath Basin's salmon population. Concurrently, the Service is pursuing development of a fishery habitat restoration plan to be integrated with recommendations of the flow study.

Restoration activities in the Trinity and Klamath basins have focused on stabilizing eroding streambanks, physically restoring instream habitat (channel modification), and adjusting stream flows. Similar efforts are ongoing in the Chehalis River basin, with special emphasis on improving water quality in the estuary. Efforts in the Sacramento River and Central Valley focus on improving water quality and quantity, improvements to physical habitat, and use of hatchery technology to preserve the unique genetic characteristics of the Sacramento River stocks.

Under the Service's Partners for Wildlife program, begun in 1987,

habitat restoration projects are being undertaken in voluntary cooperation with private landowners. These projects range from the simple plugging of a ditch to restore a drained wetland basin in the Midwest and the planting of bottomland hardwoods on abandoned farm fields in the Lower Mississippi River Valley, to the physical reestablishment of a natural stream profile following decades of bank erosion and siltation in Montana's Blackfoot River Valley. Riparian habitats are also being restored through both vegetative planting and fencing of livestock.

To date, Partners for Wildlife projects have been implemented for the restoration of more than 210,000 acres of wetlands and associated upland buffer areas and several hundred miles of riparian and in-stream habitats. More than 28,000 separate project sites located on the property of approximately 10,900 individual landowners have been restored. A host of conservation entities and State agencies have actively participated in this effort, including the provision of cost share funds. In FY 1995, our national goal will be to secure at least 40 percent non-Federal cost-share, on average. With each passing year, as more and more landowners learn about the program and see the project results first hand, the number of requests for restoration assistance increases. A special Report to Congress covering Fiscal Year 1993 restoration activities has previously been provided in response to an Appropriations Committee request.

This program, which received $5 million this year in emergency supplemental funds, is a key element of the Service's effort to achieve the Administration's flood-control and ecosystem restoration objectives in the Midwest.

Our Coastal Ecosystems Program integrates Service capabilities, promotes ecosystem-based policies, seeks partnerships to carry out on-the-ground projects, and serves to catalyze public action to solve problems in the Nation's most significant coastal watersheds. This program began in 1985 with efforts in the Chesapeake Bay and has grown to include nine high priority estuarine and coastal systems nation-wide. Positive results in habitat and fishery restoration efforts in the Bay includes the announcement by the Atlantic States Marine Fisheries Commission that the Atlantic coastal stock of striped bass is now restored. This restoration was a result of a concerted effort by State and federal agencies to rebuild the stock.

Through the Coastal program we have worked with other Federal, State, and local partners to reopen more than two hundred miles of coastal stream habitat to anadromous fish passage, restoring access to former spawning grounds that had been closed for years. The program has worked with EPA and other partners to improve estuarine water quality, with the resultant expansion of submerged aquatic vegetation, a key indicator of environmental quality, as well as an important habitat for many bottom-dwelling

fish and invertebrates.

In several estuaries, the Service and its partners have restored the natural flow of water, either freshwater or tidal brackish water, to increase the productivity and habitat quality of coastal wetlands. The Coastal Ecosystems Program has also expanded riparian (streamside) habitats, reducing sediment, nutrient, and pesticide loads to the water, while at the same time providing needed habitat for neotropical migratory birds and other wildlife.

The Service is beginning to implement a holistic approach to restoration of the Great Lakes ecosystems. This approach requires a coordinated effort to address water quality, habitat degradation, aquatic nuisance species, and fishing mortality. Given the size of the Great Lakes watershed, restoration activities will, by necessity, range from habitat restoration at the local scale, to lake trout restoration on the basin-wide scale.

The Service looks forward to applying our experience and knowledge in carrying out the mandates of an amended H.R. 4481. However, the Administration's ability to carry out the mandates of H.R. 4481 will be subject to the availability of appropriations. No funds have been requested in the FY 1995 budget for the tasks outlined in the legislation, and our

appropriations bill is already awaiting Senate floor consideration.

In response to the Committee's questions about the strengths and weaknesses of the bill, H.R. 4481 would provide an excellent foundation for restoring our Nation's aquatic ecosystems. The strengths of the bill are its recognition of the importance of our aquatic ecosystems and the peril they face, development of a national strategy for guiding restoration activities, the emphasis on grass-roots support, and funding of restoration projects that will benefit the ecosystems and provide direct employment benefits to the local economy.

The bill could be improved in various sections. It requires a lengthy planning process (development of the Strategy, review of projects by the Council, funding provided by the National Fish and Wildlife Foundation) that could delay implementation of restoration projects until 1996 or beyond. The Service would like to work with the Committee to streamline this planning process.

The bill also requires that the Task Force produce recommendations for supporting the restoration activities by way of a "user-pays" approach. The use of a "user-pays" system, where users or degraders of water resources provide support for restoration, has inherent appeal. However, such a system is

often politically difficult to implement. The bill requires the Task Force to produce recommendations on a "user-pays" approach, and such an economic study may be beyond the expertise of the Task Force. We suggest that H.R. 4481 be amended to include authorization to hire an outside contractor to determine how one would make such a user-pay system work and the practicality of such a system to fund restoration efforts. The bill requires other analyses that may also be beyond the expertise of the Task Force.

In the absence of a "user-pays" system, the Service is concerned that base appropriations might be earmarked for contribution to the Fund, thereby reducing agency capabilities to address other resource issues. The Service looks forward to working with the other Task Force members to produce a system that will provide strong financial support for the Restoration Trust Fund.

The Administration has a number of suggestions for amendments to the language in H.R. 4481, which we will provide in a subsequent report to the Committee prior to markup. A number of agencies have specific ideas about this bill, and we want to be able to provide for the Committee a consolidated package of suggested amendments.

In closing, Mr. Chairman, the Department of the Interior supports the intent of H.R. 4481 and believes that with some refinements,

this legislation will provide a significant step forward in efforts to restore our aquatic ecosystems. We look forward to embarking on a strong national aquatic ecosystem restoration effort for today and for the future.

I would be happy to answer any questions that you or members of the Committee may have.

MATTOLE RESTORATION COUNCIL
BOX 160
PETROLIA, CALIFORNIA 95558

STATEMENT OF FREEMAN HOUSE, MATTOLE RESTORATION COUNCIL
ON H.R. 4481
U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON MERCHANT MARINE AND FISHERIES
SUBCOMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES
JULY 19, 1994

Mr. Chairman and Members of the Committee:

My name is Freeman House; I am a founder and director of the Mattole Restoration Council (MRC) in northern California. The MRC and its member groups have for fifteen years engaged in salmon enhancement and watershed rehabilitation work, and in community organizing in the service of these activities. I am submitting as an addendum to these remarks a magazine article I wrote some years ago which describes this work, and the consequences of the work, in more detail.

Civilizations and nations rise and fall according to the health of their ecosystems. This well-documented cycle has been repeated again and again in human history: in China and Mesopotamia, on the Ionian peninsula and on the Phoenician coast of latter-day Lebanon. After 500 years of Euroamerican residence in North America, we are facing this regular crisis of civilization once again. But this time there may be a difference. My knowledge of history is extremely limited, and I may be wrong about this, but as far as I know never before has the governing body of a great nation recognized the consequences of the exhaustion of their resources in time to mount a strategy to break the cycle. I see this bill as an important part of that strategy and I am exceedingly proud to contribute to your deliberations. I am proud, too, that H.R. 4481 was introduced by the congressman from my district, Dan Hamburg.

I don't need to spend much time documenting the need for the restoration of aquatic ecosystems. The collapse of a salmon fishery which depends on the quality of fresh water habitat should be symptom enough. The salmon fishing regions of California have recently been declared economic disaster zones as hundreds of

independent fishers are forced out of business. The Atlantic salmon fishery suffered the same fate two generations ago. It doesn't take a great leap of the imagination to realize that when waterways won't support salmon it is only a matter of time at the current rate of degradation before the same waterways will not provide water for essential human uses.

I would like to spend my time today talking to you about why I believe that a localized community approach to this strategy is essential to its success. There are several reasons why this is true. The health of ecosystems and their reaction to excessive development is a phenomena made up entirely of details; details of population fluctuations, of weather patterns over the long term, of land use history. Not to mention the idiosyncracies of individual landowners. We also need to remember that we are entering into a timetable dictated by nature; an undertaking where trying to imagine short-term fixes will almost inevitably result in the waste of public funds. The natural recovery of damaged ecosystems proceeds at its own pace. If we are wise, we will attempt to time our restoration programs within nature's timetable in the hope of augmenting and hastening natural processes rather than attempting to impose technological solutions. In the Mattole watershed, we have guessed that we are engaged in an undertaking that will demand the attention of residents and landowners for another twenty to thirty years.

So we have to ask ourselves how we can cost-effectively fill the requirements for intimate everchanging detailed observation combined with the need to maintain a high level of commitment over a period of time which may be longer than the life of the current generation. I have been able to imagine no other solution to this problem than to rely on the people who are already immersed in the ecosytems with which we are concerned -- the residents and landowners of watersheds.

Further, we need to encourage the development of non-profit inhabitory entities which assume as their goal the restoration of watersheds to historical levels of health and productivity. This is not to exclude the patterns of vested interest that exist in every natural area, but to provide these same interests with an overarching vision which provides for our collective needs.

One of the challenges of ecosystem restoration —indeed of ecosystem management in general -- is to develop strategies that flow easily across private property lines and the jurisdictions of various government agencies. These boundaries breaks our aquatic sytems into fragments which are devoid of ecological continuity. Again, these are challenges necessarily resolved on the local level, parcel by parcel, land manager by land manager. My own experience with various interest groups in my watershed has demonstrated that when the productive resource base is understood as requiring healthy natural areas, the people who live in those areas are able to engage in common endeavors that were once thought impossible.

The goals of H.R. 4481 as I understand them are two-fold: to establish a national strategy for aquatic ecosytem recovery, and to provide fiscal support where it will do the most good: at the level of the active watershed community. Two generic problems arise in the implementation of these goals. One is the tendency for federal strategies to be top-heavy; and the other is the fact that federal funds tend to become heavily politicized as they move toward their intended goals. Too often I have had the distressing experience seeing appropriately targeted legislation diverted from its intent before reaching its desired constituency.

Everyone recognizes the need for a national ecosystem recovery strategy. Anyone who has been involved at all in ecosystem restoration will recognize the need for long t.rm comprehensive planning. Watershed restoration work without comprehensive planning becomes watershed puttering -- an activity which has benefits to its practitioners but may or may not serve the goal of long term recovery. Action plans must necessarily be drawn around specific places, however: one plan will never fit all. Any planning process will once again rely for its efficacy on the quality of all that intimately observed detail to which I've referred earlier. Planning and program development need to happen at the level of the watershed and ecoregion. The appropriate role of the Task Force established by this bill will be to establish a requirement and criteria for planning at the watershed level, and then to make support available for the achievement of those goals in the near term - say, two or three years. It may be impossible to avoid the establishment of ecoregional boards or councils to fine-tune priorities and to provide assistance to this process in the most direct and effective way.

Should the Fish and Wildlife Foundation remain the vehicle for distributing aquatic restoration funds, the bill before us needs to add language recognizing the needs of community groups which seem to be, but are not, peripheral to on-the-ground projects. There needs to be ample support for the forementioned planning and for project development at the local level. Staffing for volunteer coordination will pay for itself many times over. Monitoring and evaluation must be provided for at the functional local level as well as at the centralized oversight level. This provides a feedback loop that allows restoration workers to evaluate and improve their own strategies as the work proceeds. Unless we provide for educational increments at the level of local primary and secondary schools, how can we hope to recruit the new energies that will be required to maintain our work in the long term? The existence of real overhead costs at the local level needs to be recognized. The present low ceiling on overhead costs would probably not be adequate even if it were all directed to the local level; experience shows that this provision is likely to be drained off by a more remote level of administration.

These comments are presented out of a conviction that we should move ahead rapidly to implement the goals of H.R. 4481. My concerns were developed in consultation with other watershed councils, a natural resource employment agency, and fisherman's organizations in northern California, and I found their concerns to be remarkably uniform. There is a sense of excitement over the development of a national strategy for the restoration of aquatic ecosystems, and a quiet anxiety about our ability to implement it. I'd like to congratulate the sponsors of this bill for the audacious and epoch-making quality of their intention -- and to wish you all the best of luck in inventing forms which will demonstrate those intentions in the thriving, healthy streams and waterways of North America.

TESTIMONY OF

BETH NORCROSS

DIRECTOR OF LEGISLATIVE PROGRAMS

BEFORE THE

HOUSE MERCHANT MARINE AND

FISHERIES COMMITTEE

ENVIRONMENT AND NATURAL RESOURCES

SUBCOMMITTEE

ON H.R. 3873 AND H.R. 4481

JULY 19, 1994

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Thank you for the opportunity to testify today on three very important measures regarding protection and restoration of the nation's riverine systems. My name is Beth Norcross, and I am the Legislative Director of American Rivers, a national organization dedicated to the protection and restoration of America's river systems. I will testify directly on H.R. 4481 and H.R. 3873 and will support the statement of Mr. Mike Houck regarding H.R. 4289, the "Waterways Restoration Program." Ms. Furse is to be commended for introducing such an important measure which will have a long-standing effect on the restoration of aquatic resources. American Rivers is strongly supportive of this bill.

H.R. 4481 -- the National Aquatic Ecosystem Restoration Act of 1994

American Rivers strongly supports H.R. 4481 and commends Congressman Hamburg and Congressman Studds for introducing this important legislation.

Increasingly the nation is faced with critical decisions about how to manage and conserve America's rivers. Rivers are essential, dynamic ecological systems, which are crucial to our nation's future well-being. Rivers are truly the circulatory

greater than that at any other time in human history and far faster than they are being restored."

The findings of the Environmental Protection Agency's National Water Quality Inventory report, the so-called "305(b) report", released this spring were no rosier. Over 20 years after the passage of the Clean Water Act, the report stated that 44% of the nation's rivers and streams still do not meet state water quality standards for designated uses. While these statistics are disturbing, they are not surprising. While the Clean Water Act has improved chemical water quality, it has done little to address pervasive threats to the biological and structural aspects of river health. Accordingly, channelization, inadequate flows from dam-building and diversions, sedimentation and a variety of toxic runoff sources go virtually unchecked.

In response to this dire picture of our nation's aquatic health, the National Research Council in its report stated strongly that "(t)here is a need for comprehensive, integrated programs that support stream and river restoration at all levels inherent in the drainage hierarchy, from local reaches and tributaries to interstate waterways." It went on to recommend that "a national aquatic ecosystem restoration strategy be developed for the United States," adding that "(a)lthough restoration ecology applied to aquatic ecosystems is in a very

strategy, but provides a mechanism through which the strategy will be implemented on the ground by the individuals and organizations in the best position to restore the nation's streams -- those who live on or by the river and who care most about it.

The bill also provides the funding mechanism for the implementation strategy whereby the Task Force makes recommendations to the President as to sources of funding for local restoration efforts, which are subsequently enacted if Congress does not disapprove the recommendations. Appropriately, recommended funding sources will consist primarily of fees imposed on those who degraded those water resources the bill intends on restoring. Focus group surveys we have conducted in the Northeast have indicated that the general public is very surprised that water users for the most part use our nation's public water resources for free. The public seems very comfortable with the notion that hydroelectric producers pay for the use of water, even if it means a small increase in individual utility bills.

H.R. 4481 also recognizes that the complex rules and regulations that make up our nation's disjointed water management policy provide both barriers and opportunities to widescale restoration efforts. Section 3(c) of the bill requires that a

Overwhelmed with pollution and lined with concrete, urban watersheds can no longer clean themselves. Their fish and wildlife species are depleted. They remain choked with garbage and debris. A recent 1992 EPA study found that while urban population areas take up only approximately 2.5% of the total land surface of the country, pollution from these areas accounts for 18% of impaired river miles. Importantly, these degraded urban streams too often run through our poorest and least enfranchised communities.

While certain provisions of the Clean Water Act do address some of the current threats to urban rivers, the severity of the problems facing these streams warrants a specific program designed to give special attention to the restoration of metropolitan rivers. The most effective vehicle for that restoration is the empowerment of local activists and local government entities to carry out small, site-specific projects on rivers in which they are personally invested.

Accordingly, Delegate Eleanor Holmes Norton, (D-D.C.) recently introduced H.R. 3873, the "Urban Watershed Restoration Act of 1994." We wholeheartedly endorse the passage of this landmark legislation and applaud Ms. Norton's leadership on the very important issue of protecting and restoring our nation's urban streams. H.R. 3873 currently enjoys the support of its 42

best be met using natural ecological means. The use of revegetation of the nearside riparian habitat as an alternative to more costly settling ponds as a means of meeting stormwater requirements is a good example of how cities can meet their environmental requirements while at the same time restoring important river resources.

H.R. 3873 requires EPA to review urban restoration grant requests pursuant to an established set of criteria, including standards related to ecological objectives as well as economic and community goals. These criteria, at a minimum, shall include: (i) priority for projects aimed at restoring physical habitat and biological integrity for urban rivers and streams and (ii) priority for projects that provide jobs and career development in urban watershed restoration for youth, in particular through corps programs.

We are optimistic that this bill will not only result in greater protection for urban rivers and streams, but also for enhanced community cohesiveness for neighborhoods who undertake projects and long-term career opportunities for youth who need them most.

In closing, I would like to point out that the three bills being considered today tackle many important river protection and

ORGANIZATIONS ENDORSING

THE NORTON URBAN WATERSHED RESTORATION BILL

America Outdoors (national)
American Rivers (national)
American Whitewater Affiliation (national)
Anacostia Watershed Society (D.C.)
Coalition to Restore Urban Waters (C.R.U.W.)
Friends of the Chicago River (Chicago)
Friends of the Los Angeles River (Los Angeles)
Friends of the River (CA)
Friends of the Riverfront, Inc. (Pittsburgh)
Michigan United Conservation Council (MI)
N.A.A.C.P. (national)
National Association of Service and Conservation Corps (national)
National Audubon Society (national)
National Wildlife Federation (national)
Natural Resources Defense Council (national)
New York Rivers United (NY)
Openlands Project (Chicago)
Pacific Rivers Council (national)
Passaic River Coalition (NJ)
River Network (national)
Trout Unlimited (national)

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HR 4408 Russian River Fisheries and Riverbed Restoration Act

~~Testimony of Laurel Marcus, California State Coastal Conservancy,~~
project manager for the Russian River Resource Enhancement Plan

The Russian River Fisheries and Riverbed Restoration Act will create a partnership between the federal government , State of California, local governments and community organizations in restoring the Russian River watershed. This restoration project is the largest effort in the State of California to restore an overall river system. For the past three years the California State Coastal Conservancy has led this planning effort which focuses on balancing the needs of people with the need to recreate fish and wildlife habitat.

The Russian River was once a world famous steelhead fishery with trophy sized fish. With the advent of large federal public works projects in the 1940's and '50's the watershed was developed. Two large reservoirs provide drinking water for a million people and reduce flooding. Bank revetment was installed to stabilize the river channel. Floodplain landowners were encouraged to farm closer to the river and maximize agricultural land. Gravel was removed from the river to build dams and roadways.

Fifty years later the fish are mostly gone, the river has downcut in response to the dams, groundwater levels have dropped and agricultural land is eroding as the river tries to readjust to these developments. The long term effect of our attempts to control and use the river has been to lose many of the benefits it once provided.

The federal government in sponsoring the damming and developing of the Russian River could not have predicted the long term implications of these actions. Large scale water supply systems are a recent invention and have only been built in the past fifty years. Only recently have the effects of these massive projects come to light.

The Russian River Enhancement program documents the long term environmental and economic implications of both federal water development projects and subsequent floodplain developments. The program uses 40 years of detailed hydrologic, geomorphic and biological data and represents one of the best studied river systems in the country. The focus of the program is on the river's processes and balancing these processes to provide for the long term sustainability of water supply, fisheries and agriculture within this developed watershed. The program recommends restoring a river meander corridor capable of undergoing natural river processes of erosion and and build-up to foster a healthy aquatic ecosystem but within smaller bounds than the completely natural

condition. I have provided your committee staff with the background reports on our program.

The real question that the Russian River program addresses likewise affects most river systems in the west: can people and fish live and thrive in the same watershed? We believe they can and that a program such as this which seeks to sustain human uses along side fish and wildlife is the approach needed in most areas of the country. Neither the federal government or the State of California can afford to purchase and set aside vast tracts of land and watersheds for the sole purpose of restoration and production of fish. This program serves as a valuable model in answering the question: how do we restore a developed river system and change management practices to bring back fishery habitat and create a healthy ecosystem with people in it?

In addition to using a vast amount of scientific data and analysis for the Russian River plan we have established a diverse coalition of interest groups that guide our program. It is not just environmentalists and fishermen who benefit from a healthy watershed; farmers, water purveyors, recreationalists, businesses and urban dwellers have their interests served when the river system is in balance and all beneficial uses can be sustained. This community-based approach is by no means an easy path; convincing the river's users and its adjacent owners of the need to change and the importance of providing for restoration of the fishery is a large task. But we have been inclusive of all interest groups, interviewed landowners, held over fifty public meetings and made numerous presentations about river science. We have found keen interest and vast cooperation, our coalition has been meeting for three years with none of our 25 groups dropping out. There is a long term community interest in restoration of the river. I have also provided information on this coalition to your committee staff.

This community based planning approach is an example of good government: reaching out and serving the interests of both a diverse community and the environment. Our restoration solutions integrate these needs and assure long term success. Like the restoration approach this community based planning provides an excellent model for other watershed efforts and eclipses the unpopular federal top down bureaucracy so prevalent in river projects of past decades.

The State of California and our local partners have expended nearly $1 million in studies and planning efforts to assure a well-balanced restoration program for the Russian River. The Russian River Fisheries and Riverbed Restoration Act will make the federal government a partner in implementing this project and create an innovative model for the country. We urge your passage of this important legislation.

Vol. 1, N° 1, March 1994

Russian River NOTES

How to get involved

Call Karen Gaffney at Circuit Rider Productions, (707) 838-6641, to have your name added to our mailing list.

Let us know if you wish to be interviewed about your experiences with the Russian River.

If you wish to receive copies of *Hydrology and Geomorphology of the Russian River*, or other studies prepared as part of the planning process for the Russian River's enhancement, call:

Laurel Marcus, (510) 286-1015,

or Karen Gaffney, (707) 838-6641.

Study Shows Long-term Changes in the Russian River

A recently completed study of the river's hydrology and geomophology, prepared for the Russian River Resource Enhancement Plan, looks at changes in the river system over time. By studying river processes we are better able to evaluate future trends in the system and to gauge what these trends may mean for all the river's assets—water supply, farming, fish and wildlife, aggregate, and recreation. The Russian River Plan is being prepared by a project team in which the California State Coastal Conservancy has joined with Circuit Rider Productions, Inc., the Mendocino County Water Agency, and consultants.

By far the best-documented trend in the main stem of the Russian River is channel downcutting. When the sediment supply of the river is out of balance with the flow, water scours and eats away its bed and banks. In Mendocino County the river lies directly below Coyote Dam, which impounds water and sediments that moved normally through the river system until 1959, when the dam was built. When water is released from behind the dam it is "hungry": Because sediments have settled above the dam, the water is clean and has a greater ability to downcut the banks and chew up the river bottom. There has been a 10 foot drop in the river bed in the past 30 years. The river scours riparian habitat, drops the level in groundwater wells, and erodes agricultural land. Tributary streams are also affected. As the base elevation of the main river drops, the tributary bed adjusts. The creek bed widens and its banks erode. This large-scale river process directly affects bridge abutments, sewer lines, creek, banks, and salmonid habitat.

Bank erosion along the middle reach of the Russian River threatens streamside forest as the river channel downcuts.

In the Alexander Valley, the Russian River is broad and its channel is wide and sparsely vegetated. It is very different from the river long-time residents remember. Some old-time residents we interviewed described a brushy low-flow channel with deep pools but no continuous summer flows. Cows and children could hide from the summer heat in the dense vegetation. The channel was nearly level with surrounding floodplain fields. In contrast, today the river flows year-round. In the upper section of the valley, its channel is filling and sediment is being deposited, while in the lower valley a downcutting trend has been observed. The problem of bank erosion has grown and rip-rap is regularly needed to protect farmland. Riparian habitat is much reduced since the 1940s and several owners have lost the use of wells. Surveys indicate that between 1971 and 1991 the riverbed dropped as much as 12 feet just downstream of the Geyserville Bridge. Meanwhile, the upper valley has aggraded several feet.

The Middle Reach of the Russian River, stretching for nine miles below Healdsburg, has been studied the most intensively. Since the 1940s this section of the river has dropped by 18 feet. It has continued to downcut throughout the 1980s. These changes are due largely to intensive deep pit gravel mining in the 1960s and 1970s, narrowing of the channel for agricultural reclamation, and construction of the Warm Springs Dam in the 1980s. As with the Mendocino reach, bank erosion both on the main channel and tributaries and loss of groundwater wells have caused problems for landowners. Bank erosion and scour of riparian habitat, as well as a drop in groundwater, is expected to continue. Also a future hazard along this stretch of the river are the deep riverside gravel pits. As the river channel tries to widen, it can erode through the unconsolidated, unengineered soils that separate the pits from the channel. Pit capture on other rivers has resulted in rapid river bed downcutting, undermining bridges and eroding private property. The enhancement plan project team is currently evaluating this potential problem and will include an alternative that addresses it in the plan.

Documenting the trends on the Russian River over the past 50 years is the first step in the planning process. Our technical advisory committees have reviewed and discussed the study. A list of more than 20 alternatives has been developed to bring the Russian River into better balance. The river's processes of sediment deposition and erosion determine the beneficial uses that the river system can provide and whether wildlife habitat, a stable water supply, more stable river banks, and sustained agricultural use of the floodplain will continue. The key to balance in the Russian River system is addressing the long-term trends of river downcutting and working with all the interested parties to come to agreeable solutions. The plan recognizes that most of the river corridor is privately owned. Cooperation of landowners is a requirement for all projects.

—Laurel Marcus

The Plan Objectives

- Assemble existing information, including historical maps and documents.
- Study long-term geomorphic and hydrologic changes in the river channel and corridor.
- Evaluate measures to reduce property damage from streambank erosion and flooding.
- Formulate measures to improve water quality, salmonid, and wildlife habitat through enhancement of the river corridor.
- Coordinate and cooperate with local planning efforts, including the update and environmental impact report of the Sonoma County Aggregate Resources Management Plan.
- Convene an advisory committee in each county to provide representation from the community and to review and comment on the plan. Attempt to survey or interview riverfront landowners and to gain from their input and knowledge of the river. Hold workshops to obtain public input.
- Evaluate possible access sites and recommend for development several controlled walk-in public recreation sites along the 100-mile river corridor.

Riparian Habitat on the Russian River ❧

A Russian River Enhancement Plan status report completed in January 1994 documents the extent and quality of riparian forest along the Russian River. Riparian (streamside) forest is rare in California; more than 90 percent has been lost to development, agriculture, and other uses. On the Russian River, 40 percent of the riparian forest was lost between 1940 and 1992. Riparian habitat is the most highly productive wildlife habitat, supporting the greatest diversity of animal species. Half of the reptiles and three fourths of the amphibians in California, as well as many bird species, depend upon streamside forest. The thick and fertile tangle of riparian forest is California's version of the tropical rainforest.

Not only does riparian forest provide for a broad diversity of animal species, it also stabilizes river banks and protects agricultural lands; it catches large woody debris during floods, protecting vineyards and orchards from log jams; it creates and shades streamside pools and contributes a diversity of aquatic habitat for fish by providing woody debris, root masses, and undercut banks.

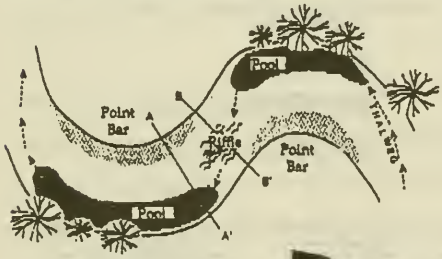
The extent and quality of riparian forest is controlled by the physical processes of the river. A healthy forest consists of many tree and shrub species and a mixture of tall, mature trees, mid-range trees, and seedlings. This mixture is dynamic, shifting as the river changes. For example, channel scour and bank erosion remove mature trees along the river's edge and add woody debris to the channel. The seeds of "pioneer" species, such as willow, germinate on newly laid-down sediment on gravel bars.

Willows are among the hardiest of riparian trees and are able to withstand the force of river flows; therefore, they grow closest to the active channel. As the willows mature, their dense root and branch systems catch more sediment, building hummocks of higher ground along gravel bars. These hummocks diversify as other tree species invade, and over time a mature forest may develop, replacing other areas of mature forest scoured out by the river.

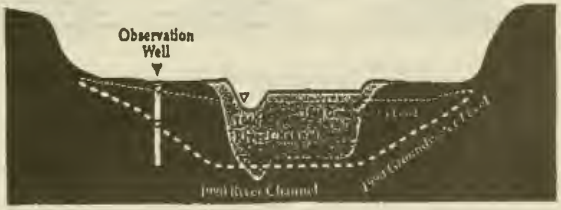
This process of scouring, loss and regrowth of habitat is termed succession. It occurs at the mercy of the river's channel process. To maintain the health of the riparian habitat, the river's physical processes must allow for these successional changes. The mature habitat that exists today could easily be lost next winter. Unless there are middle-aged and new trees to replace the mature trees, over time the system will score a net loss.

The enhancement plan aims to improve riparian habitat by focusing on the river's equilibrium and recommends measures to restore a greater level of balance to allow natural riparian habitat succession to occur.

—Karen Gaffney



A meandering channel slows the force of the water, depositing sediment on one bank while cutting into the opposite bank. Courtesy of Philip Williams & Associates.



This cross-section of the middle reach of the Russian River depicts the downcut channel and its effects on groundwater levels.

Russian River Resource Enhancement and Public Access Plan

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State Coastal Conservancy

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Testimony of
James R. Lyons
Assistant Secretary for Natural Resources and Environment
U.S. Department of Agriculture

before the
SUBCOMMITTEE ON ENVIRONMENT
AND NATURAL RESOURCES
of the
COMMITTEE ON MERCHANT MARINE AND FISHERIES
U.S. HOUSE OF REPRESENTATIVES
July 19, 1994

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Thank you for this opportunity to discuss the Administration's position on pending legislation HR. 4289, the Waterways Restoration Act of 1994.

I am pleased the Subcommittee has committed this time to discussing restoration of these valuable natural resources. As we are all aware, many of the Nations waterways are no longer functioning as dynamic or diverse aquatic ecosystems.

I want to commend Congresswoman Furse for this bill because it makes an important contribution to the debate over the direction and goals of this Nation's natural resource policies. The Administration supports several of the principles contained in the bill which are designed to emphasize non-structural, community-based projects to restore waterways. The bill takes strong steps to erase some of the historical distinctions that federal programs have made between urban and rural communities, high income and low income populations, and economically depressed and economically advanced cities and regions. It is also critical that ecosystem principles be incorporated into our natural resource programs, and the bill reflects this concept as well.

For example, the bill embodies the Administration's focus on ecosystem based management. Streams and rivers do not recognize political boundaries; their health is dependent upon restoring both their urban and rural components. Urban creeks and streams have also been the most frequent victims of pollution, channelization and other degradation, but when restored and protected they can provide havens of beauty and recreation within inner city neighborhoods.

Waterway restoration, as encouraged under this legislation, could provide a cost-effective alternative to structural projects and also enhance such important attributes as fish and wildlife habitat and recreation opportunities. While it is generally far more ecologically beneficial to select the non-structural alternative when it is practical and feasible to do so, the best environmental solution should be based on the site specific characteristics. Sometimes the gradient of the stream does not allow for non-structural solutions. Sometimes the right-of-way land values and availability of land is severely restricted, making non-structural solutions economically prohibitive. Further, some structural projects do provide many ecological benefits, such as fisheries enhancement, sediment basins, wetland creation, and stream stabilization.

By giving priority for funding to stream restoration projects that benefit low income and minority communities -- areas that are deserving of greater attention from the federal government -- the Waterways Restoration Act would also assist implementation of President Clinton's recent Executive Order on Environmental Justice by assisting low income disadvantaged communities in resolving environmental problems. Additionally, under this bill, priority would be placed on funding projects that train and employ at-risk youth in community service, as the President called for in encouraging the enactment of the 1993 National and Community Service Trust Act.

The Waterways Restoration Act would amend the Soil Conservation Service's existing authority for the Small Watershed Program. This 1954 program, authorized by Public Law 83 -566, initially focused on building structural facilities or projects, such as dams and channelization projects, which tend to be high in cost and high in environmental impact. In the last 10-15 years, the Small Watershed Program has shifted emphasis and has become more environmentally sensitive in addressing flood control and watershed protection needs in an ecological manner. However, the original perception of the program's high impact on the environment remains. Further, the Small Watershed Program addresses local needs and the national benefits are not always apparent. As a result, support for the Small Watershed Program has diminished.

The Small Watershed Program currently requires that at least 20 percent of the total benefits of each project relate directly to agriculture, including rural communities. With this restriction removed, the Small Watershed Program could serve as a tool for solving local urban and rural waterway restoration problems. One concern is that the legislation requires a specified percentage of the Small Watershed Program funding for waterway restoration. In general, it would be more appropriate to have greater flexibility to adjust the proportion of funds as opportunities and priorities arise. Another issue we always need to be concerned with is making certain that this and other programs do not overlap, especially where they may already be an Administration priority.

The Waterways Restoration Act also proposes to broaden the focus of the Soil Conservation Service's Small Watershed Program by adding a grant program to fund community-based environmental restoration projects. If Congress chooses to continue appropriating resources to the Small Watershed Program, riparian habitat restoration, wetland restoration, water quality and watershed management are the activities that should be funded. We suggest that this initiative can be more fully and effectively considered in the context of the 1995 Farm Bill.

The Soil Conservation Service has over a half century of experience working with private landowners in promoting conservation treatment on uplands, which is critical to the overall quality of the waterway ecosystem. It has a long history of working with local sponsors in achieving local objectives in solving natural resource problems. With this agency's delivery system of providing technical assistance through the State offices and local conservation districts, the Soil Conservation Service is the appropriate agency to administer a waterways restoration program.

I appreciate the opportunity to testify today and we will be happy to respond to your questions.

Statement of Michael C. Houck
on behalf of the
Urban Streams Council, Tualatin, Oregon
and the
Coalition to Restore Urban Waters
before the Merchant Marine and Fisheries Committee
Subcommittee on Environment and Natural Resources
Hearing on H.R. 4289, National Aquatic Ecosystem Act of 1994

Chairman Studds and subcommittee members, I want to express my sincere appreciation for the opportunity to provide testimony in support of H.R. 4289, the Waterways Restoration Act of 1994. I appear before you today representing the national Coalition to Restore Urban Waters (CRUW) as well as the Urban Streams Council, a program of The Wetlands Conservancy, Tualatin, Oregon. The Coalition to Restore Urban Waters was established to focus attention on the unique challenges and opportunities associated with the restoration of degraded urban aquatic ecosystems and the communities which surround them.

The Coalition to Restore Urban Waters was initiated by grassroots, citizen organizations to solve the unique problems associated with degraded urban waterways. The coalition is composed of groups from the Friends of The Chicago River (IL), the Minority Environmental Association (OH and GA), the New York and New Jersey Baykeepers (NY and NJ), Lake Ponchartrain Basin Foundation (LA), Urban Creeks Council of California (CA), Friends of the Los Angeles River (CA), River Watch Network (VT), Adopt-A-Stream Foundation (WA), Friends of Rivers (TX), Florida Lake Management Society (FL), Urban Streams Council (OR), Ecology/Racial Justice (PA) and Huron River Watershed Council (MI) and many more grassroots organizations from throughout the country.

We represent virtually every major metropolitan region in the United States. We have also successfully formed partnerships with numerous federal, regional and state agencies and professional organizations to pursue the restoration of aquatic ecosystems. Our partners include the national Associations of State Floodplain and Wetland Managers; the National Park Service's Rivers and Trails Conservation Assistance Program; Soil Conservation Service, U S Fish and Wildlife Service, Bureau of Reclamation, U S Forest Service and the U S Environmental Protection Agency. Participation in the development of H.R. 4289 is one of many issues which our individual coalition members have worked on with our numerous partners for the past two years.

Appended, for your information, is an article, *Restoring Urban Waterways*[1], which will provide you with an historical background of CRUW's formation and our involvement in the development of H. R. 4289. Those of us involved in the formation of CRUW recognize that the plight of our nation's aquatic ecosystems, both rural and urban, demand new solutions to address the need to restore the nation's rivers, streams and wetlands, while simultaneously meeting the needs of local communities and governmental agencies and jurisdictions. While we are focusing on the unique needs of urban waterway restoration, we recognize the need to link the restoration of urban and rural waterways if we are to successfully reverse the degradation of the nation's waterways. I have also attached copies of CRUW's *Initiatives for Urban Waterway Restoration and Objectives of the Coalition's Programs* which outlines our mission and goals.

I was asked to specifically address five issues associated with H.R. 4289 for this hearing. They are:

1. The status of our nation's aquatic resources and the greatest needs and opportunities for their restoration.

2. To give examples of successful and unsuccessful restoration projects and to present common elements of each.

3. To compare economic, ecological and social benefits of the non-structural restoration restoration methods which are encouraged through H.R. 4289.

4. To assess three goals established in H.R. 4289: a). promotion of local projects to restore urban waterways; b). facilitate restoration efforts in low income and minority communities and c). provide job creation and job training opportunities for at-risk youth, displaced workers and national community service corps.

5. The appropriateness of the U. S. Soil Conservation Service and Public Law 566 as vehicles to achieve the objectives outlined in H.R. 4289.

6. To assess whether changes are needed to ensure H.R. 4289 meets the objectives of our Coalition.

STATUS OF THE NATION'S AQUATIC ECOSYSTEMS

There are abundant federal, regional and local studies that indicate our nation's aquatic ecosystems are degraded and that an aggressive national effort to restore the physical and biological integrity of our waters is sorely needed. We know, for example, that as early as 1954 this country had lost over 40% of its wetlands and that we continue to lose wetlands at the rate of approximately 400,000 acres per year[2]. In the late 1960's Congressional hearings and a report from the Council on Environmental Quality called attention to the degradation of our nation's aquatic ecosystems from clear cutting, wetland drainage, alteration of hydrology, lowering of groundwater, reduced flows, increased water temperatures, bed and bank erosion, sedimentation, loss of in-stream habitat and urbanization[3]. In the 1980's it was determined that 70% of the country's floodplain forests had been converted to urban and agricultural uses and in some regions such as the lower Mississippi, Colorado, Sacramento and Missouri Rivers these riparian habitat losses are as high as 95%. A Council on Environmental Quality report finds that only 5-6% of the nation's rivers are capable of supporting a high quality sport fishery and that over 40% of our perennial streams have been degraded by siltation, bank erosion and channelization.

In addition to these more well-known problems there have been many unanticipated impacts to our nation's waterways through well-intentioned but poorly conceived structural projects. Scientists have documented for over twenty years the negative impacts of these projects on environmental and ecological resources. However, they are now also documenting the unanticipated performance problems with channelization, levee and bank stabilization projects which are not providing reliable protection from floods or erosion. It is now recognized that we must return river and stream channels to their state of "dynamic equilibrium." Creation of unnaturally constrained channels is not only an elusive to impossible goal, but also has severe environmental drawbacks. The biological diversity of these systems will return through the restoration of natural river and stream flooding; stream morphology and riparian and wetland

vegetation. These projects can also provide the same, similar or better benefits in flood damage and erosion reductions. We now know that it is not necessary to assume that environmental values must be sacrificed to achieve our engineering objectives. H.R. 4289 recognizes this fact and encourages citizens and agencies to work together to combine sound engineering with ecological restoration that will provide multiple benefits to the surrounding communities.

The status of our nation's urban waterways has not been as well documented as other aquatic ecosystems. We know, however, in the Portland metropolitan region, that we have lost more than 90% of the wetlands, sloughs and open water habitat in the ancient floodplain of the Columbia River[4]. The Tualatin River, Johnson Creek and Columbia Slough are all water quality limited water bodies and the City of Portland is currently engaged in an effort to reduce Combined Sewer Overflows into the Willamette River, at a cost of over $750 million. Many of our most degraded urban waterways are situated in inner city neighborhoods where resources to clean up the water and restore riparian and wetland habitats and other beneficial uses has historically been.

I am here to offer our support of H.R. 4289 to address the fact that our nation's waterways are known to be in a degraded condition. Too little attention has been focused in the past on the need to link ecological and social issues to ecosystem restoration. We feel that H.R. 4289 makes that connection between biological and community restoration which the Coalition to Restore Urban Waters believes lies at the heart of restoring our nation's urban waterways.

EXAMPLES OF SUCCESSFUL AND UNSUCCESSFUL PROJECTS

The provisions of H.R. 4289 are modeled after one of the most successful urban waterway restoration programs in the United States. The state of California's Department of Water Resources urban waterway restoration program has had a successful track record over the past ten years. One of the most important elements of this program is the requirement that citizen groups must form partnerships with local agencies and jurisdictions and visa versa. This model fosters cooperation in solving waterway restoration problems and is at the heart of H.R. 4289. With limited financial and human resources we need to craft new approaches to solving environmental remediation. H.R. 4289 establishes a new restoration paradigm which recognizes that to be successful, and to move through local, state and federal permit processes, holistic and ecologically-oriented restoration efforts require a "bottoms up", grassroots approach.

Two examples of successful projects are the Johnson Creek Watershed in Portland, Oregon and Wildcat and San Pablo Creeks in North Richmond, California. These projects are interesting in that they had different origins but both ultimately recognized the importance of early public involvement and cooperation with government agencies. In the case of Johnson Creek earlier agency-driven efforts to address flood reduction objectives, which were focused only on flooding issues and not on multiobjective management of the stream for its multiple values, failed because the general public and neighborhood groups were not provided a range of lower cost, more environmentally sensitive project options. More recent efforts to address flooding and water quality problems in the Johnson Creek watershed have been successful because the City of Portland's Bureau of Environmental Services engaged numerous neighborhood, conservation group, business and agency representatives in a holistic, watershed-oriented planning process. Restoration projects have been planned and implemented at the neighborhood level utilizing volunteers, including at-risk youth and private property owners.

Wildcat and San Pablo Creeks offer another example of community-base restoration that also addressed flooding issues[5]. What began as a single-purpose U. S. Army Corps of Engineers

classic trapezoidal channelization project evolved, through local citizen advocacy and the involvement of a committed group of urban waterway restorationists, into a multiobjective project which incorporated restoration of the natural stream channel, reduction of sedimentation, protection of endangered species, development of a regional trail, institution of an environmental education program for an school adjacent to the channel and reduction in maintenance costs.

The hallmark of both of these successful examples is the large number of cooperators and the multiple benefits of each project. In the case of Johnson Creek cooperators include several local businesses, Friends of Johnson Creek, numerous neighborhood associations, the cities of Portland and Milwaukie, numerous conservation organizations, Multnomah and Clackamas Counties, several state and federal agencies and the regional planning agency, Metro. The Wildcat Creek project involved the Contra Costa Flood Control District, U. S. Army Corps of Engineers, Richmond Neighborhoods Coordinating Council, Urban Creeks Council, Save San Francisco Bay Association, U. S. Fish and Wildlife Service, state legislators, Grizzly Peak Flyfishers and numerous other organizations. Both of these projects have leveraged money through these cooperative partnerships.

By contrast, large-scale structural engineered projects are typically "top down", agency-driven and costly to construct and maintain. While it is difficult to compare costs between traditional, structural projects, it is estimated that highly engineered flood and bank stabilization projects, on average, cost as much as $5 million per mile[6]. Non-structural engineering projects and restoration can cost as little as $3,000 per mile in the case of volunteer-oriented snagging and clearing projects to perhaps as much as $1 million per mile for extensive soil bioengineering and bank modification projects[7]. The state of California's restoration grants program, after which H.R. 4289 is modeled, has averaged $30,000 per project and has not exceeded $200,00 for any single project in the ten years that program has existed. In addition to these cost savings, non-structural projects typically incorporate improved fish and wildlife habitat, open space, recreational features and are aesthetically more pleasing to the surrounding community.

Another significant consideration in evaluation of the long term efficacy of structural vs non-structural alternatives is the cost of maintaining the projects. Since the non-structural projects typically rely on the functioning of natural systems, use of native vegetation and returning streams and rivers to a more natural condition, their maintenance is low. We have found that many federally funded cost-shared projects are not adequately maintained due to fiscal constraints at the local level. Oftentimes these projects fall in disrepair and, as a consequence, fail over time. H.R 4289 recognizes this fact by encouraging projects which are less costly to build in the first place and which require a minimum of maintenance.

ECONOMIC, SOCIAL AN ECOLOGICAL BENEFITS OF NON-TRADITIONAL RESTORATION METHODS AS PROPOSED IN H.R. 4289

I have already discussed the economic advantages of non-structural over the more traditional structural alternatives. In addition to lower installation and maintenance costs, the non-structural approaches provided for in H.R. 4289 yield many social and ecological benefits. H.R. 4289 is as much about restoring communities as the waterways it seeks to restore. One of the single most important elements of the legislation is that it recognizes the importance of involving the community in the design, implementation and care of a stream restoration project. H.R. 4289 also specifically addresses the need for these restoration projects in the inner city where rivers, streams and wetlands are typically most degraded. The Wildcat Creek restoration project in North Richmond, California, which I referred to earlier in my testimony is an example of such a project. The citizens of North Richmond opposed the Corps proposal and became

proactively engaged in helping design an alternative project to the U. S. Army Corps' classic trapezoidal channel flood control project. The result was a project which provided numerous benefits to the local community, including a regional recreational trail, shading to decrease water temperatures, fish and wildlife habitat, open space and an environmental educational for Verde School which is adjacent to the channel. H.R. 4289 also would also provide funding for the formation of watershed councils. We view this as a significant contribution to addressing social issues associated with restoration projects since representatives from the local community would necessarily be active participants in such a council.

The ecological advantages of the non-structural projects envisioned under the provisions of H.R. 4289 far surpass the classic hard-engineered structural flood or erosion control projects. The National Park Service's Rivers and Trails Conservation Assistance Program, in cooperation with the national Associations of Floodplain and Wetlands Managers, has presented several case studies in the publication, *A Casebook in Managing Rivers for Multiple Uses*. The Multiobjective Management element of the non-structural approaches which are encouraged in H.R. 4289 recognize the multiple values of urban waterways and encourage projects which provide ecological benefits in addition to flood and erosion reduction. The use of native vegetation in soil bioengineered projects, for example, result in erosion reduction of severely degraded urban waterways as well as providing important riparian habitat, reduction in stream temperatures and, over the long term, increased structural diversity of the waterway. Many other benefits such as aesthetic, educational, recreational and increased adjacent property values are frequently associated with well-designed non-structural projects. There are fish and wildlife habitat and endangered species implications with the non-structural projects as well. In the pacific northwest we are struggling to recover our salmon fishery which would benefit from restoration of urban and rural waterways.

PROMOTION OF LOCAL PROJECTS AND JOB TRAINING OPPORTUNITIES

H.R. 4289 not only encourages, but requires, projects to be initiated at the local level. Under the provisions of this legislation local groups must partner with the agencies responsible for designing or approving these projects and those agencies would also be required to consult with the local community. We view this as the most important provision in H.R. 4289. The closer to the local level waterway restoration projects are the more successful they will be over the long term.

Another key element of H.R. 4289 is its reliance on hand labor for installation of the project. The low tech, soft-engineered projects which this legislation encourages requires hand labor that is best provided by local conservation corps. We envision utilizing local conservation corps extensively in meeting the objectives of H.R. 4289. Priority will be given to projects which benefit low income and minority communities where the waterways are typically most degraded, and where federal programs have frequently not provided assistance in the past. CRUW hopes that, through the provisions of H.R. 4289, local conservation corps which provide on-the-job training for at-risk and economically disadvantaged youth will be created in communities where none currently exist and will be strengthened in communities which already have active conservation corps. One of our partners in CRUW and an active participant in development of H.R. 4289 is the National Association of Service and Conservation Corps.

The involvement of at-risk youth in waterway restoration efforts is a key objective of H.R. 4289. In Portland, Oregon for example the Urban Streams Council is working on a pilot project which involves ten at-risk youth, all of whom had dropped out of high school, to perform restoration projects on the Columbia Slough. The students are now back in school and are

working this summer on streambank stabilization projects and are working with a local business to improve the Slough on their property. The students are being paid for their work during the summer months and are expected to receive their high school diploma, after which they will receive a voucher for their continued education. Without funding from H.R. 4289 and other sources these projects will not be possible.

APPROPRIATENESS OF THE SOIL CONSERVATION SERVICE TO ADMINISTER THE PROGRAM

The Coalition to Restore Urban Waters has worked closely with the Soil Conservation Service on numerous projects, both at the local and national levels. The SCS was a prime sponsor of our first national conference, Friends of Trashed Rivers, which drew more than 200 grassroots urban stream restoration groups from around the country to San Francisco in the fall of 1993. Again, we have drawn on the California model in recommending the Soil Conservation Service as the most appropriate agency to administer the program. The Soil Conservation Service and the local Soil and Water Conservation Districts are engaged in day-to-day work with private property owners and are uniquely suited to rapid delivery of technical support and on-the-ground support for projects envisioned under H.R. 4289.

I want to emphasize that previous projects which have been funded through PL 566 have not had the economic, ecological and social benefits of projects that will be encouraged under this legislation. We feel one of the most significant benefits of working on H.R. 4289 has been establishing a working relationship with SCS staff at both the national and local level to ensure that H.R. 4289 meets the needs of that agency as well as our objective of encouraging more ecologically and socially sensitive restoration projects. We are confident that SCS's new Urban and Community Assistance initiative will provide the focus necessary to ensure that the objectives outlined in H.R. 4289 will be met by SCS. At the local level we are already working closely with SCS, Oregon Department of Agriculture and the local Soil and Water Conservation Districts to put in place a program to implement H.R. 4289. We have local buy-in for the program. What we need now is funding to get projects into the ground, to create local jobs for at-risk and disadvantaged youth and to restore our urban waterways.

SUGGESTED CHANGES TO H.R. 4289

Quite frankly, we believe that the bill, as written, reflects more than two years of cooperative efforts to meet everyone's concerns concerning the restoration elements, appropriateness of the administering agency and the use of PL 566 as a programmatic home for the program. We have met with every national conservation organization, representatives from the agricultural community, SCS and Soil and Water Conservation District staff and other federal agencies to ensure that H.R. 4289 met all of their needs. The language in H.R. 4289 has been reviewed numerous times by these and other groups and has been revised to reflect the concerns of our constituents as well as those in the agricultural community who would be most directly affected by amendments to PL 566. We recognize that, while PL 566 has resulted in environmentally damaging projects in the past, it now has the potential to be a powerful tool in restoring our nation's urban and rural aquatic ecosystems. We urge you to work towards immediate passage of this legislation to provide us with tools to get on with the task at hand, restoring some of our country's most degraded urban waterways as well as the communities through which they flow.

1. National Wetlands Newsletter, Volume 15, Number 6. November/December, 1993, Environmental Law Institute.

2. S. P. Shaw and C. G. Fredline, Wetlands of the United States, U. S. Department of Interior, Fish and Wildlife Service, Circular 39 (1956).

3. Arthur D. Little, "Channel Modification, An Environmental, Economic and Financial Assessment, " Report to the Council on Environmental Quality, Executive Office of the President (Washington, D. C. 1873); Philip W. Simpson, et al., Manual of Stream Channelization Impacts on Fish and Wildlife, U. S. Fish and Wildlife Service, prepared by Environmental Science and Engineering, Inc. (July, 1982); Edward L. Thackston, Robert B. Sneed, Review of Environmental Consequences of Waterway Design and Construction Practices as of 1979 Environmental Quality and Operational Studies, Technical Report E-82-4, prepared for Office, Chief of Engineers, U. S. Army (Washington, D. C.: April 1982).

4. The Urban Naturalist, Fall, 1985. Audubon Society of Portland.

5. A Casebook In Managing Rivers for Multiple Uses, Association of State Wetland Managers, Association of State Floodplain Managers and National Park Service, October 1991.

6. A. L. Riley, Urban River Restoration, Flood Control's Future, in press

7. Personal Communication, A. L. Riley, Urban Creeks Council, Berkeley, CA (July 12, 1994).

COALITION TO RESTORE URBAN WATERS

STATEMENT OF PURPOSE

COALITION TO RESTORE URBAN WATERS

February 26, 1993

The COALITION TO RESTORE URBAN WATERS (CRUW) is a national network of diverse grassroots groups which protect and restore urban watersheds, waterways and wetlands. The coalition represents all peoples and groups, including ethnically diverse, and disenfranchised interests, conservation corps, educational institutions, nonprofit creeks councils, conservation groups, and citizens committed to restoration of urban waters. The coalition also provides a mechanism for fulfilling the new national service corps program for the Clinton administration.

The Coalition works with local communities to address the unique values, opportunities, and issues of urban waterways. Urban waterways are an important link between the environment, the economy, recreation and neighborhood identity in the community. While the Coalition focuses on urban ecosystems, it recognizes the connection among urban environments and rural, suburban, and wildlands watersheds.

The coalition provides its partners with:

- networking and information sharing;

- technical assistance and successful restoration models;

- promotion of economic opportunities through restoration of urban waters;

- assistance with funding opportunities;

- a forum for collaboration among traditionally defined environmental groups and disenfranchised urban populations;

- opportunities for environmental education, curricula, community awareness, and environmental stewardship, and;

- a forum for partnerships between grassroots groups and national environmental groups, fisheries groups, local state and federal agencies, peace corps and business interests.

Regional Contacts: ♦ **Northeast:** Riverwatch Network, 153 State St., Montpelier, VT 05602 (802) 233-3840; ♦ **Central East Coast:** Save Our Streams, Izaak Walton League, 1401 Wilson Blvd., #B, Arlington, VA 22209 (703) 528-1818; ♦ **Southeast:** Cahaba River Society, 2717 7th Avenue South, #205, Birmingham, AL 35233; ♦ **Central U.S.:** Friends of the Chicago River, 5050 N.Ravenwood, Chicago, IL 60640 (312) 939-0490; ♦ **Southwest:** Golden State Wildlife Federation and Urban Creeks Council, 1250 Addison Street, #107, Berkeley, CA 94702 (510)848-211; ♦ **Northwest:** Urban Streams Council, P.O. Box 1195, Tualatin, OR 97062 (503) 225-9916

COALITION TO RESTORE URBAN WATERS

INITIATIVES FOR URBAN WATERWAY RESTORATION
THE OBJECTIVES OF THE COALITION'S PROGRAMS

1) THE PROMOTION OF MULTI-OBJECTIVE FLOODPLAIN MANAGEMENT in which the solutions selected for reducing damages in flood prone communities address the needs for urban quality of life, open space, recreation, environmental education, protection of biodiversity, and restoration of downtown business, cultural institutions and economic interests;

2) THE REVIVAL OF LABOR INTENSIVE ENVIRONMENTAL RESTORATION TECHNOLOGIES AND PROGRAMS and development of new restoration and watershed management methods which restore the natural functions of streams and associated wetlands. These restoration methods are being used in lieu of and in conjunction with conventional infrastructure projects to manage urban stormwater and flood and erosion control problems. These projects support work and training opportunities for youth and adult conservation corps;

3) THE ADVANCEMENT OF RIVER RESTORATION METHODS which are designed to assist in recreating the dynamic equilibrium of streams and rivers, and promote the restoration of functioning diverse plant communities. Our restoration objective is to the extent possible, to emulate the structure, function diversity and dynamics of a specified ecosystem in order to establish a defined, indigenous historical ecosystem.

4) THE PROMOTION OF URBAN STREAM AND RIVER "GREENWAYS" which provide critically needed open space and, in some cases, inner-city pocket parks in densely populated areas. Greenways are designed to create linkages between neighborhoods and communities, preserve community identities and natural resources and provide recreational opportunities to all demographic groups;

5) THE EXPANSION OF THE FOCUS OF NATIONAL AND STATE CLEAN WATER REGULATORY PROGRAMS FROM REDUCTION OF POINT AND NON-POINT POLLUTION DISCHARGES TO CONTROLLING THE SOURCES OF POLLUTION BY USING INTEGRATED WATERSHED MANAGEMENT STRATEGIES. The integrated strategies should combine erosion control, storm water management, wetland creation and restoration, and pollution source control. We promote the use of citizen monitoring to: increase compliance with federal clean water laws, empower communities which receive a disproportionate share of pollution, educate and increase public awareness of urban watershed issues, and expand the monitoring resources of government programs strapped with increasingly limited budgets.

REGIONAL CONTACTS ♦ **Northeast:** River Watch Network, 153 State St., Montpelier, VT 05602 (802) 223-3840 ♦ **Central East Coast:** Save Our Streams, Izaak Walton League, 1401 Wilson Boulevard., Level B, Arlington, VA 22209 (703) 528-1818 ♦ **Southeast:** Minority Environmental Association, P.O. Box 1607, Decatur, GA 30030 (404) 373-4771 ♦ **Central U.S.:** Friends of the Chicago River, 407 S. Dearborn Ave., Ste 1580, Chicago, IL 60605 (312) 939-0490 *and* Minority Environmental Association, 3609 Milar Rd., Sandusky, OH 44810 (419) 625-3230 ♦ **Northwest:** Urban Streams Council, 729 S.E. 33rd St., Portland, OR 97219 (503) 239-4065 ♦ **Southwest:** Golden State Wildlife Federation and Urban Creeks Council, 1250 Addison St., #107, Berkeley, CA 94702 (510) 848-2211.

Coalition to Restore Urban Waters

Political Action Committee

THE CRUW POLITICAL ACTION COMMITTEE SUPPORTS THE FOLLOWING

- SPECIFIC POLICY INITIATIVES -

* Increase the participation of state and local conservation corps in waterway restoration.
    * Support existing and new federal, state and local funding opportunities for local and state conservation corps
    * Develop a nationwide training and jobs creation program to engage conservation corps in waterways restoration
* Develop collaborative waterway restoration projects with the National Community Service Corporation, Americorps programs.
* Strengthen waterways parks and greenway programs
    * Support Senator Johnston's legislation which will appropriate funding for previously unfunded Land and Water Conservation Fund projects and provide funds for new projects. Work with Johnston and Congressman Miller to amend the LWCF Act (P.L. 90-542) to enable non-profits to receive land and Water Conservation Funds in addition to state and local governments. The coalition has agreed that the emphasis of this program should remain with acquisition projects because of the great limitation of federal funding for land acquisition.
    * Support augmentation of the National Park Service Rivers, Trails and Conservation Assistance program in order for the NPS to take part in federal-local cost-sharing program to provide community "seed" grants for rivers and trails projects.
    * Support appropriations to the National Park Service to acquire river floodplains for the purpose of carrying out multi-objective floodplain management programs.
* Develop new missions for federal water agencies in waterway restoration and watershed management
    * Support Congresswoman Elizabeth Furse's Waterways Restoration Act of 1994, H.R. 4289. This legislation redirects funds from traditional dam, channelization and bank stabilization projects under P.L. 566 to river, wetland and waterway restoration projects.

* Revise the Federal Standards and Guidelines for the Evaluation of Flood Loss Reduction Projects.

    * Request that the Clinton Administration develop the necessary task force to redraft the Standards and Guidelines for the evaluation of federal flood loss reduction projects so that the current single objective cost-beoefit analysis is replaced by a multiple objective evaluation system.

* Promote social equity in water resources programs

    * Request that agency heads develop implamantation plans to carry out the Preaident's directives that federal programs foster social justice for low income, minority and native American communities.

    * The Assistant Secretary of the Army in charge of Civil Works should be directed to redraft its cost-sharing guidelines to remove barriers to low income communities participating in Water Resources Devalopment Act projects, as directed under the 1986 Water Resources Development Act. The cost-benefit analysis should remove barriers to federally assisted projects in areas with substandard housing or business districts.

* Promote coalitions with rural watershed management organizations.

    * CRUW's H.R. 4289 represents a commitment to working with our more rural counterparts to achieve common goals in watershed restoration.

* Establish a pilot program of coordinated watershed restoration in the Upper Mississippi River Basin. The features of this program should include:

    a) The development of a restoration plan that includes multi-objective floodplain management within a 18-month deadline.

    b) Use an interagency, interdisciplinary planning team involving local citizen groups, governments and state and federal level agencies to develop a consensus plan.

    c) Support citizen involvement with a small grants program to cover meeting time, transportation and report preparation costs.

    d) Develop credibility for the planning process by establishing immediate and on-going small restoration projects in the upper basin administered by non-profit and government partnerships.

6) THE ADMINISTRATION OF URBAN WATERWAY PROGRAMS IN A MANNER WHICH ADDRESSES THE NEEDS OF THE MOST SOCIALLY AND ECONOMICALLY DISENFRANCHISED COMMUNITIES, and integrates the needs and involvement of the country's diverse cultures. Address the potential inequities in which communities receive government resources and remove biases in cost-sharing or cost-benefit analyses which prevent low income communities access to government projects. Waterway restoration should be tied to community restoration in which neighborhood and business district improvement and restoration of community and regional identity and awareness are important objectives in restoration projects.

7) THE DEVELOPMENT OF COMMUNITY VALUE IN AND AWARENESS OF INDUSTRIAL OR GREATLY IMPACTED OR POLLUTED WATERWAYS should be an integral part of restoration programs. Restore aesthetic and environmental values of concrete channels, commercial waterways, waterfronts, irrigation, water supply or flood control channels.

8) THE PROMOTION AND SUPPORT OF STATE AND LOCAL YOUTH CONSERVATION CORPS AS WELL AS FEDERAL PILOT PROGRAMS. State- and community-based conservation corps provide paid work experience and environmental education opportunities for local youth and young adults, many of whom are economically and educationally disadvantaged, and thus help assure community benefits and involvement in restoration projects. As the new market for restoration develops, trained youth corps graduates will be well-prepared to move into permanent jobs in the restoration field. In addition, the National Civilian Community Corps' five pilot projects hold potential for accomplishing projects while introducing young adults to restoration.

ELIZABETH FURSE
1st District, Oregon

Committees
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Subcommittees
Housing and Community Development
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MERCHANT MARINE AND FISHERIES
Subcommittees
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Merchant Marine

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The Waterways Restoration Act of 1994

Purpose

The goal of this legislation is to promote the restoration of rural and urban streams, rivers and wetlands as a cost effective means to control flooding, non-point pollution and erosion; restore fish and wildlife populations and other ecological values; enhance local economies; improve public health in communities that rely heavily on locally-caught fish for food; and generate local jobs and job training opportunities for at-risk youth and others.

Summary of the Bill's Major Provisions

* The bill creates a new technical assistance and grants program for waterways restoration within the Soil Conservation Service's (SCS) existing Watershed Protection and Flood Prevention Program -- established in 1954 under Public Law 566 to fund primarily structural flood control projects, such as dams and stream channelization projects. The SCS was chosen to administer the new program in order to take advantage of the agency's national network of on-the-ground resource specialists and existing expertise in watershed protection.

* The new restoration program will fund non-structural, community-based projects providing environmental benefits -- such as the establishment of floodplain riparian zones, the stabilization of stream banks using vegetation and other biotechnical slope stabilization techniques, and the removal of culverts. Funding can also be used to organize local watershed councils, train participants and develop consensus watershed plans that result in on-the-ground projects.

* The program will be administered by the State Conservation Office in each state. States with existing comparable programs will be certified to receive the funds to administer the programs in their states, in order to avoid duplication of government programs.

* Interdisciplinary teams will be established in each state to review project proposals for eligibility and to make recommendations to the State Conservationist on funding priorities. These teams will be composed of representatives of governmental agencies or non-profit organizations and must include a range of scientific specialists. In addition, each team will include a representative of the Fish & Wildlife Service, EPA, and NMFS (in coastal states), as well as appropriate state agencies.

* Project eligibility and priority will be evaluated by the interdisciplinary teams using a cost-benefit approach that weighs the local social, economic, ecological, and community benefits (based on local needs, problems and conditions) against the project's financial and social costs.

* Priority will be given to projects benefitting low-income or ethnic minority communities (places that have historically been overlooked by federal programs), providing significant environmental or economic benefits, or generating job training and employment opportunities. Priority will also be given to projects previously approved under P.L. 566 that meet or are re-designed to meet the requirements of the new program.

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- The federal/non-federal cost share for projects will be 75:25, however, the non-federal share can be waived in economically depressed communities. Local groups may also use labor, land, equipment, materials and consulting services as in-kind contributions to their cost share.

- Projects must be proposed by a partnership of one or more citizens organizations and a governmental agency or district.

- In each state, the Governor must establish a citizens oversight committee to undertake an annual evaluation of the program's effectiveness, accessibility to low income and minority communities, and success in creating jobs and job training opportunities.

- No new funding will be requested for this program; instead 20% of the budget of SCS's existing small watershed program will be directed to these new projects.

National Wetlands Newsletter

VOLUME 15, NUMBER 6
NOVEMBER/DECEMBER 1993

Lowering the Levee

Will the flood of 1993 change the way the Corps approaches floodcontrol structures? A nonprofit staffer discusses the causes and possible implication of Mississippi flooding.

Restoring Urban Waterways

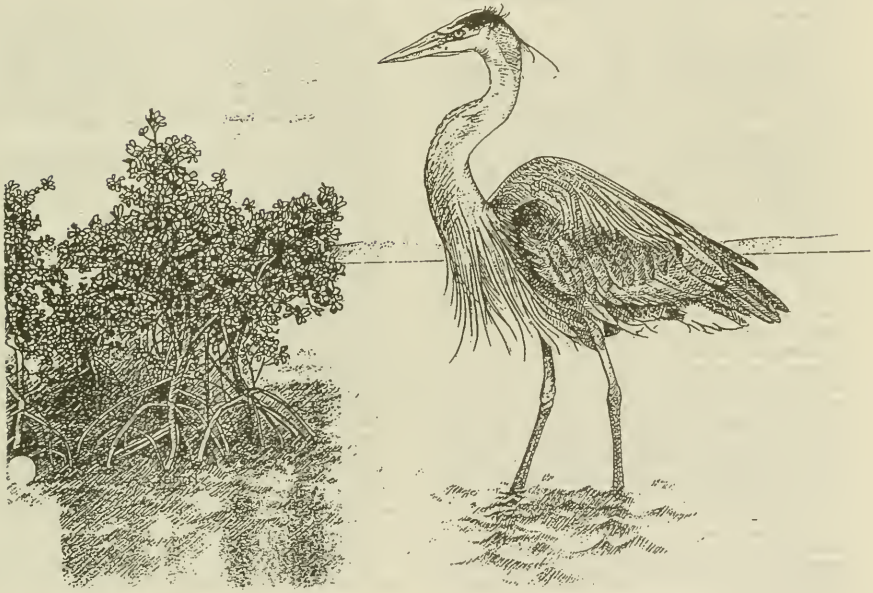
Most Americans live near them — and ignore them. A new coalition for urban waterway restoration has been formed to put forth a new agenda for river protection.

Reclamation and Watershed Managment

Is there a role for the mining industry in watershed management? A consultant to the sand and gravel industry proposes a new model of public-private cooperation.

Checking Cumulative Impacts

Cumulative impacts are difficult to document and rarely regulated. A former Corps employee details one attempt to bring these problems under control on the Fox River in Illinois.



COALITION BUILDING

Restoring Urban Waterways

by Michael C. Houck

While the primary focus of this fall's American Rivers' conference, *The Future of America's Rivers*, was to celebrate the 25th anniversary of the National Wild and Scenic Rivers Act, speaker after speaker, from Jim Lyons, Assistant Secretary for Natural Resources and Environment of the USDA, to Department of Interior's Bureau of Reclamation's chief Dan Beard and Congressman George Miller (D-CA), waxed poetic about childhood memories from an urban river or stream. Even actor Michael Keaton, the gala banquet's master of ceremonies, commented on his youth on an urban stream.

Although only one conference workshop was devoted specifically to urban river restoration, the future of river restoration, at least in part, seems to lie in returning to our collective and individual past—to rivers and streams where most of us caught our first trout, dipped for polliwogs and bagged our first dragonfly. Given that more than 80 percent of us live in cities, it is not surprising that many advocates of river protection got their start on the ditch behind their school or the storm drain in back of the neighborhood supermarket.

At the conference, activists called repeatedly for the creation of a "parade" for national river protection. One way to produce a more powerful movement might be to put more resources into solving stream and river problems where the people are—in the nation's urban centers.

Why an Urban Waterway Agenda?

Many of our states and most cities are financially strapped. Nonprofit organizations fight over limited funding and all agencies, at all levels of government, lack staff. Why put resources into degraded urban watersheds? With our limited resources, would money not be better spent salvaging the few remaining pristine rural ecosystems? Why should we spend money on ecological restoration when the essentials of social services, police and fire protection, education, and decaying urban infrastructure are in such need of funds?

There are innumerable reasons that urban watersheds are worthy of protection in their own right. Two authors succinctly and passionately offer socioeconomic, ecological, and philosophical rationales for the protection and restoration of urban waterways. Charles Little's *Greenways for America* uses case studies to document the importance of urban streams and rivers, and other greenways, for the maintenance, renewal, and connectors of communities. Little argues that greenways should be incorporated into the urban fabric as an alternative infrastructure, receiving the same status as roads, sewers, and utilities. Urban streams are critical to maintaining the quality of life in our cities. They provide fish and wildlife habitat and open space where they are needed most: where the people live. They offer unparalleled recreational opportunities; provide effective open space; add to adjacent property values; and provide a natural, low-cost alternative for filtering polluted stormwater runoff.

Robert Michael Pyle, in his book *The Thunder Tree*, describes the many philosophical reasons to protect and restore urban waterways. Chief among these is his fear that urban populations, especially children, will suffer an "extinction of experience," which is no less troubling than the extinction of flora and fauna. He illustrates through his own excursions on Denver's Highline Canal, that city kids can experience nature nearby. Pyle feels that if we lose touch with nature as youngsters we cease to care. Since most of us have access only to the urban ditches and streams that are typically culverted, channelized and cemented over, one of our most pressing challenges is to protect and restore these areas.

There are other reasons why urban waterways should not be written off. Most urban stream groups are grounded in the social equity issues associated with urban waterway restoration. Unlike many mainstream environmental causes, social and environmental justice issues are often integral to urban stream restoration. Urban stream restoration efforts in inner city areas are as much about the restoration of community, including reviving the local economy and creating jobs, as about ecological restoration.

Developing a National Urban Waterway Coalition

The epicenter of urban stream restoration and grassroots activism has been in Oakland, Berkeley, and north Richmond, California. The guru of the urban stream restorationists is Ann Riley, co-founder of California's Urban Creeks Council, a statewide urban stream network dedicated to the protection, daylighting (liberating culverted, buried streams and bringing them above ground), and rehabilitation of urban waters.

No urban waterway project better exemplifies the urban stream movement than Wildcat Creek, which originates in the Berkeley hills and flows through one of the region's poorest and most toxic-ridden communities, north Richmond. Wildcat Creek restoration began when the U.S. Army Corps of Engineers proposed a sterile flood control channelization project for the creek bed.

Fortunately, a coalition of north Richmond activists, the Urban Creeks Council, and a local consulting firm, Phil Williams Associates, formed an alliance with moxie, technical knowhow, and community organizing abilities to develop an alternative flood control and restoration design. This design was multi-objective in nature—combining low flow and high flow channels with riparian vegetation, a recreational trail, and non-structural elements. The citizen's design was eventually adopted and now adorns a new Corps' flood control manual.

In addition to being one of the nation's best known stream restorationists, a brewmistress, and co-founder of Berkeley's Yeast Bay Brewery, Ann Riley has a passion for sharing information and promoting "user friendly" small watershed grants programs for community-based urban stream restorationists. As with many good ideas, the blueprint for a national coalition of grassroots urban stream restorationists was outlined on a napkin in a Berkeley Thai restaurant. After discussions with grassroots organizations and national con-

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servation groups, the idea took hold and a meeting was set for February, 1993. The initial planning meeting brought together urban restoration groups, national conservation organizations, Rep. George Miller (D-CA), and national and local conservation corps and agencies—the Environmental Protection Agency (EPA), National Park Service (NPS) and Soil Conservation Service (SCS) —to establish a mission, agenda, and action plan for CRUW, a national Coalition to Restore Urban Waters. CRUW's mission is to form:

> a national network of diverse grassroots groups which protect and restore urban watersheds, waterways and wetlands. The coalition represents all peoples and groups, including ethically diverse and disenfranchised interests, conservation corps, educational institutions, nonprofit creeks councils, conservation groups and citizens committed to restoration of urban waters. While the coalition focuses on urban ecosystems, it recognizes the connection among urban environments and rural, suburban and wildlands watersheds.

CRUW will build on existing programs to achieve its mission. Karen Firehock, Director of the Izaak Walton League's Save Our Streams program, will take a lead role in organizing CRUW's activities through the national offices in Arlington, Virginia. CRUW's informal, regional offices in Vermont, Alabama, Illinois, Oregon, and California, serve as communication centers within their regions.

CRUW—Bringing the Grassroots Together

One of the first recommendations of CRUW's ad hoc steering committee was to convene a national conference to bring grassroots activists from throughout the United States to share information regarding their individual restoration efforts and to help develop an agenda for CRUW. The conference, which was sponsored by the EPA's Office of Wetlands, Oceans, and Watersheds, the Bureau of Reclamation, the NPS's Rivers & Trails Conservation Assistance Program, and the SCS, attracted over 300 representatives of grassroots restoration groups, conservation corps, and non-profit organizations from around the country.

There is no way to truly capture the spirit of camaraderie and high level of energy that was present throughout the conference. The case studies presented of both literal restorations and symbolic community restoration were representative of the numerous, creative, and dedicated stream restoration groups around the country.

For example, Reggie Archie of the East Bay Conservation Corps described, with considerable pride and humor, his work with inner city youth and African-American men in building crib walls to restore a section of Courtland Creek in one of Oakland's poorer neighborhoods. Coalitions among restorationists and conservation corps help ensure that CRUW will address social justice as well as environmental issues.

No speaker showed more creativity and wit than Lewis MacAdams, poet and community leader from Los Angeles and co-founder of the Friends of the Los Angeles River. This group has taken on the challenge of restoring this channelized waterway that sees the light of day for only six of its forty-six miles. The Friends of the Los Angeles River use high school marching bands, large sculptures, and other off-beat, but highly successful techniques to garner support—and more importantly action, from the community that lives along this urban river.

Pursuing CRUW's Legislative Agenda

A special Political Action Committee, CRUW-PAC pursues legislation to work with federal agencies, to establish funding for restoration and monitoring, and to support local initiatives. The bulk of this legislation was crafted with input from national and local conservation groups as well as state, regional, and federal agencies.

Patterned after California's Urban Stream Restoration grants program, CRUW's legislative package focuses on creating a small watershed grant program that will be "user friendly" for small, non-profit restoration groups. Many federal grants programs are unwieldy for small non-profits and some federal programs either preclude or do not specifically target restoration of urban watersheds. CRUW's proposed Watershed Restoration Act of 1993 would do several things to promote urban waterway restoration.

National and Local Conservation Corps

Non-structural, multi-objective urban stream restoration projects require hands-on human labor. These projects stand in sharp contrast to classic hard-engineering structural projects traditionally promoted by the Corps. Soil bioengineering, for example, is labor intensive and requires skilled or semi-skilled labor. In order to provide labor for these projects and promote community revitalization, CRUW proposes to amend the National Community Services Act to expand funding to local and state conservation corps.

Soil Conservation Service

CRUW is working with traditionally rural-oriented federal agencies to redirect funds to urban stream restoration efforts. SCS has expressed interest in working with a new constituency in metropolitan centers. CRUW's legislation would amend two public laws (566 and 46). These changes would promote two distinct goals: creating a partnership to channel moneys to urban areas, and encouraging SCS to explore multi-objective approaches for all water projects.

Partnering with the Corps

Urban stream restoration makes for strange bedfellows and seemingly unholy alliances. CRUW's philosophy is that to be successful we must work with any agency that has the authority to work with us. When an agency does not, we will work to change the agency's authority. Changes in the floodplain management authority of the Corps and in the Water Resources Development Act to allow the Corps to undertake multi-objective flood reduction projects are part of CRUW's legislative strategy.

Multiagency Coalitions

In addition to SCS and Corps programs, CRUW intends to continue working with its more traditional allies EPA and the NPS. CRUW's legislation would require that §305 of the Clean Water Act direct all states to institute a citizen water quality and watershed monitoring program, under the auspices of EPA. CRUW proposes to work with the NPS's Rivers & Trails Conservation Assistance program to encourage multi-objective urban river and stream projects. CRUW will also work on non-traditional urban restoration efforts with the U.S. Forest Service and Bureau of Reclamation.

There is more than enough work and precious few resources. CRUW will continue to seek additional resources, build a national network of grassroots urban stream restorationists, partner with federal, state, regional, or local agencies, and continue to promote funding and technical assistance for grassroots organizations.

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Footnotes

1. Department of the Interior, National Park Service, *A Casebook in Managing Rivers for Multiple Uses*, p. 29 (1991) [hereinafter Casebook].

2. William Becker, *Noah's Architecture: Let's Not Rebuild on the Floodplain*, Washington Post, Sept. 12, 1993, at C5 [hereinafter *Noah's Architecture*].

3. *Noah's Architecture*, supra note 2, at 30.

4. Misganaw Demissie and Abdul Khan, *Influence of Wetlands on Streamflow in Illinois, Illinois State Water Survey for the Illinois Department of Conservation*, 49 (1993) [hereinafter *Influence of Wetlands*].

5. Thomas E. Dahl, *Wetlands Losses in the United States 1780s to 1980s*, Department of Interior, U.S. Fish and Wildlife Service, 21 (1990).

6 Kenneth L. Wahl, Kevin C. Vining, and Gregg J. Wiche, *Precipitation in the Upper Mississippi River Basin, January 1 through July 31, 1993*, U.S. Geological Survey circular 1120-B (1993).

7. *Influence of Wetlands*, supra note 3.

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9. R.P. Novitski, *Hydrology of Wisconsin's Wetlands*, U.S. Geological Survey, Madison, Wisconsin (1982).

10. See generally C.H. Prior and J.H. Hess, *Floods In Minnesota, Magnitude and Frequency*, Minnesota Department of Conservation (1961); C.T. Haan and H.P. Johnson, *Hydrolic Model of Runoff from Depressional Areas*, American Society of Cultural Engineers, 11:364-367 (1968); D.W. DeBoer and H.P. Johnson, Simulation of Runoff from Depression Characterized Watersheds, American Society of Agricultural Engineers, 14(4):615-620 (1971); K.L. Campbell and H.P. Johnson, *Hydrologic Simulation of Watersheds with Artificial Drainage*, Water Resources Research 11(1):120-126 (1975); L.D. Moore and C.L. Larson, *Effects of Drainage Projects on Surface Runoff from Small Depressional Watersheds in the North Central Region*, Water Resources Research, Bulletin 99 (1979).

11. Orie L. Loucks, *Restoration of the Pulse Control Function of Wetlands and its Relationship to Water Quality Objectives*, in Wetland Creation and Restoration: the Status of the Science, 468 (1990).

12. *Id.*

13. R.T. Reppert, W. Sigleo, F. Stakhiv, L. Messuram, and C. Meyers, Wetland Values: Concepts and Methods for Wetlands Evaluation, (1979).

14. *Id.*

15. Charles B. Belt, Jr., *The 1973 Flood and Man's Constriction of the Mississippi River, Science*, Vol. 189:681 (1975) [hereinafter *The 1973 Flood*]; see also R.G. Kazmann, Modern Hydrology, 115-116 (1972).

16. *The 1973 Flood*.

17. *Id.*

18. Jerry L. Rasmussen and Jim Milligan, *The River Floodway Concept: A Reasonable and Common Sense Alternative for Flood Control*, Department of Interior, U.S. Fish and Wildlife Service (1993).

19. *The 1973 Flood*, supra note 15, at 684.

20. Robert N. Stavins and Adam B. Jaffe, *Unintended Impacts of Public Investments on Private Decisions: The Depletion of Forested Wetlands*, The American Economic Review, 80:337 (1990).

21. *Id.* at 349

22. *Id.* at 349.

23. *Casebook*, supra note 1, at 5. The Corps study concluded that upstream wetlands played a critical role in reducing flooding further downstream, and that wetlands were found to act like a series of reservoirs, absorbing and storing flood waters, and then releasing water over time. See U.S. Army Corps of Engineers, New England Division, *Natural Valley Storage: A Partnership with Nature*. Public Information Fact Sheets, Spring 1976, Spring 1977, Spring 1978; and Arthur F. Doyle, *The Charles River Watershed: A Dual Approach to Floodplain Management*, Proceedings of the National Wetland Symposium: Wetland Hydrology, Association of State Wetland Managers (1988).

24. *Casebook*, supra note 1, at 13

25. *Id.* at 39

26. *Id.* at 69-73.

27. T.J. Glauthier and Katie McGinty, *Guidance Memorandum Regarding Procedures for Evaluation and Review of Repair and Restoration Projects for Levees*, Executive Office of the President, Office of Management and Budget (1993).

28. *Id.* see also statement of Edward Hecker, Chief, Readiness Branch, U.S. Army Corps of Engineers, Post Flood Recovery in the Mississippi River Basin Conference, St. Louis, Aug. 30, 1993. Four-fifths of the failed Midwest levees are not eligible for federal assistance from the Corps under Pub. L. No. 84-99.

29. Robert L. Koenig, *My People Prefer Leaving Floodplains in the Rivers; but Pot of Buyout Money May Run Dry*, St. Louis Post Dispatch, September 19, 1993, at 1.

30. 44 CFR sec. 204.400(m); *see also* statement of Larry Zenzinger, Chief of Public Assistance Programs, Federal Emergency Management Agency, Aug. 30, 1993, Post Flood Recovery in the Mississippi Basin Conference, Association of State Floodplain managers and Association of State Wetland Managers. *Federal Assistance to Midwest Communities for Relocation and Elevation of Flood Damaged Property*, Federal Emergency Management Agency (August 1993). The U.S. House of Representatives and U.S. Senate passed legislation which increased the amount of FEMA hazard mitigation funding from $24 million to $105 million.

Other programs provide funding for relocation: under FEMA's National Flood Insurance Program and Individual and Family Grant Program, disaster housing assistance can be provided to individuals for up to 18 months while relocation and elevation programs are being developed and implemented. The Cora Brown Fund can be used for relocation out of hazardous areas, and for hazard mitigation and floodplain management.

The Department of Housing and Urban Development's (HUD) Community Block Development Grant Program can fund acquisition, relocation, or elevation. The Small Business Administration (SBA) provides disaster loans to homeowners and businesses to repair or replace property damaged in a declared disaster.

The Farmers Home Administration (FmHA) is authorized to make rural housing loans and grants to buy, build or repair homes in rural areas. The section 502, Home Ownership Loan Program for low income applicants can be used for elevation or relocation. Congress provided $1.2 billion supplemental appropriations and the maximum loan amount is $105,000. The section 504 Home Improvement Loans and Repair Loans and Grants Program can provide funds to elevate homes or farm structures: $12.5 million was added to the loan program and $12.5 million was added to the grant program through the appropriation. The maximum grant is $5,000, and is only available to low income senior citizens. The maximum loan is $15,000. FHmA emergency loans are available for family farmers and ranchers to refinance existing debt, and to clean up and restore farm structures. Loans are provided at 4.5 percent interest over a 3-40 year period for physical losses. The supplemental appropriation added $80 million to the program.

31. Statement of Tom Wehri, Assistant Director, Watershed Projects Division, U.S. Department of Agriculture, Soil Conservation Service, Aug. 30, 1993.

Note: The Soil Conservation Service received $60 million for disaster relief and plans to spend up to $15 million to enroll farmers in the Emergency Wetlands Reserve Program. See the News Briefs section for more details on the Emergency WRP.

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It is imperative that urban waterways be recognized as a key element of the urban infrastructure. Protection, enhancement and restoration of riparian and wetlands ecosystems represents a cost-effective, multiple value adjunct to traditional solutions to urban water quality problems. Urban waterway restoration will not only assist in cleaning up the nation's waters but will also create jobs, address environmental justice issues, improve fish and wildlife habitat, create a network of greenways, enhance riverfront economic development opportunities, provide recreational opportunities, enhance adjacent property values and improve the quality of life in out metropolitan centers.

Urban watersheds restoration will help to generate a parade of new constituencies for the protection of rural and wilderness ecosystems. There is little doubt that tomorrow's wild and scenic river advocates are today's urban youth—kids chasing butterflies along north Richmond's Wildcat Creek, leading nature study walks on Denver's Platte River Greenway, picking tires out of Washington's Anacostia River, and planting cottonwoods on Portland's Columbia Slough. ■

A CASEBOOK IN

ging Rivers
ultiple Uses

ASSOCIATION OF STATE WETLAND MANAGERS
ASSOCIATION OF STATE FLOODPLAIN MANAGERS
NATIONAL PARK SERVICE

INTRODUCTION

The many miles of our river and stream corridors are some of our country's most valuable resources. The lands adjacent to rivers possess important agricultural soils, wetlands, fish and wildlife habitats, floodplains, historic communities and places for recreation. In the United States, rivers were used as early highways for exploration and transportation, as a source of water for industry and as a place to discharge wastes. With recent efforts to improve water quality, the nation's rivers and streams are being rediscovered. There is a growing public recognition that rivers have many other values in addition to their traditional economic uses.

A number of rivers across the nation are now being successfully managed for a broad range of objectives. The Rivers, Trails and Conservation Assistance Program of the National Park Service, in cooperation with the National Association of State Floodplain Managers and the National Association of State Wetland Managers, developed this casebook for river interests. The eight case studies in this report illustrate innovative and successful strategies for multi-objective river corridor planning and management. Rivers from throughout the country were chosen to represent a variety of physiographic and climatic zones and include both urban and rural communities.

Key information about each project is described, including a summary of important planning and implementation aspects, a description of innovative design and technical solutions with illustrations, and a discussion of institutional arrangements and successful partnerships.

What is

Many agencies and organizations are advocating a broader strategy for the management of rivers. Often referred to as "multi-objective river corridor management", this approach offers people a concept to address future uses of important rivers and their adjacent lands.

Multi-objective management encourages planning which involves a broad range of river interests and leads to decision-making that reflects a high degree of consensus. The resulting actions maximize public and private benefits with the least impacts on significant river resources.

The following recent trends are a result of renewed interest in managing river corridors to meet multiple objectives:

Multi-Objective River Corridor Management?

1 The objectives of floodplain management have been broadened to recognize the need to protect natural floodplain values as well as reduce flood losses.

2 The public desires more involvement in making decisions about projects which affect them and their communities.

3 Rivers in urban areas, often associated with historic and cultural features, are increasingly seen as the foundation for community revitalization efforts.

4 There is renewed interest in recreational opportunities associated with rivers in metropolitan areas.

5 Changing sources of funding for flood control projects require that projects meet a broader range of objectives.

6 An increasing number of designs for flood protection projects are based on the workings of natural hydrologic systems.

A key feature, essential to the success of these projects, is the development of cooperative public and private partnerships. Different projects have different supporters; incorporating multiple objectives into the planning process results in a broad base of support. These partnerships typically involve federal, state and local government; landowners; businesses; conservationists; and recreationists.

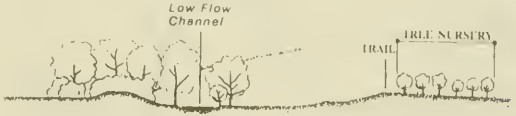
Not only do these partnerships ensure that a broad range of interests are addressed in planning, but they also bring in funding, expertise, and other critical resources. Ultimately, partnerships bring the public support necessary for long-term success.

The importance of river corridors warrants a well thought out and balanced management approach. The projects discussed in this casebook have several common elements. Among their multiple objectives, most of the projects share an emphasis on flood hazard protection. Other objectives, addressed by one or several of the projects, include improving recreation opportunities, enhancing fish and wildlife habitat, and encouraging compatible economic development. Projects also aim to

- improve or maintain water quality, protect wetlands, maintain natural hydrological processes, provide navigation and water supply and maintain riparian vegetation. The growing interest throughout the United States in managing rivers to meet a wide range of objectives is an exciting step towards meeting the multiple needs of communities while enhancing our water resources.

Where are the case studies?

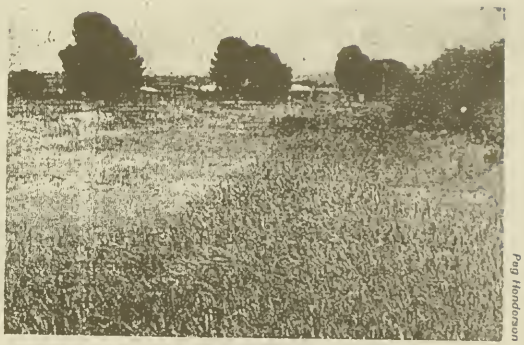
1982 SELECTED PLAN (ORIGINAL)



1986 CONSENSUS PLAN (FINAL)

Wildcat & San Pablo Creek Channel Designs

A nature study area was established at Verde Elementary School along Wildcat Creek.



Peg Henderson

PROJECT LOCATION

Wildcat & San Pablo Creeks

NORTH RICHMOND, CALIFORNIA

An advocacy planning process gave local citizens a voice in decisions about Wildcat and San Pablo Creeks. Using a multi-objective planning approach, a government-citizen team developed natural stream channel designs that maintain ecological characteristics and the capacity to convey the 100-year flood.

OBJECTIVES

- Flood hazard reduction
- Restoration of natural stream channel and riparian trees
- Reduction of sedimentation
- Wetland protection and restoration
- Endangered species protection
- Development of regional trail and other outdoor recreation opportunities
- Environmental education
- Minimization of maintenance needs, costs and impacts

PARTICIPANTS

- Contra Costa County Flood Control District
- U.S. Army Corps of Engineers
- Richmond Neighborhoods Coordinating Council
- Urban Creeks Council
- Save San Francisco Bay Association
- Contra Costa County Shoreline Parks Committee
- California Department of Fish and Game
- Grizzly Peak Flyfishers
- East Bay Regional Park District
- U.S. Fish and Wildlife Service
- California State Lands Commission
- San Francisco Bay Conservation and Development Commission
- California Coastal Conservancy
- Legislators

INNOVATIVE ASPECTS

- Flood channels were designed to resemble natural channels.
- Stable meandering low flow channels and riparian trees were used to minimize sedimentation and growth of clogging reeds.
- The riparian environment was restored with a revegetation plan; the plan's maintenance schedule is based on the actual needs of the vegetation, rather than on regular routine.

ACCOMPLISHMENTS

- Citizen-based advocacy planning efforts led to a "Consensus Plan."
- The project required only a narrow 180-foot right-of-way.
- The same level of flood protection was provided as in two earlier plans, one requiring a 250-foot right-of-way and one requiring traditional channelization.
- Maintenance requirements, costs and environmental impacts were reduced.
- A broad range of objectives made the project eligible for funding from agencies unable or unwilling to contribute to single-objective flood control.
- Use of the consensus planning process produced an implementable plan and initiation of construction in two years, breaking a 29-year impasse.

BACKGROUND

North Richmond is an unincorporated community on San Pablo Bay, a northern extension of San Francisco Bay. This community is cited by the U.S. Department of Housing and Urban Development as one of the most impoverished in the country, yet it is located in Contra Costa County, one of the wealthiest counties in California. North Richmond developed during World War II when Blacks who came to work in the shipbuilding industry were settled on the floodplains of Wildcat and San Pablo Creeks. This location exposed the community to regular flooding problems. The creeks flood moderately nearly every winter, and more severe floods put North Richmond under a foot or more of water about every three years. Planning efforts to address North Richmond's need for reducing flood losses met with great difficulty.

The flood control plan ultimately developed for North Richmond in 1989 evolved from several previous plans. Planning began in 1960 when Congress authorized a U.S. Army Corps of Engineers flood control study. This was followed by several interim plans and the introduction of advocacy planning by a coalition of neighborhood and environmental organizations. After twenty-nine years of planning history, a " Consensus Plan" was adopted and is now being implemented.

PLANNING PROCESS

Early Efforts

After flooding in the 1940s and 1950s, the Contra Costa County Flood Control District began seeking assistance for flood control. Congress authorized the U.S. Army Corps of Engineers to conduct a flood control feasibility study on the two creeks in 1960. The Corps developed several alternatives. None were economically feasible based on cost-benefit analysis, which derived economic benefits only from the value of structures and property protected. Since the North Richmond floodplain property consisted of substandard housing, valued at less than the projected cost of each alternative, none of the alternatives was considered to be economically justifiable.

In 1971, under the Model Cities Program, the U.S. Department of Housing and Urban Development (HUD) developed an urban renewal plan for Richmond which emphasized recreational opportunities along Wildcat and San Pablo Creeks and the San Pablo Bay shoreline, and

proposed the creeks as focal points for redevelopment of the area. A HUD-commissioned economic analysis incorporated potential recreational benefits, as well as future project benefits, resulting in an acceptable cost-benefit ratio for the flood-control project.

This plan spurred further flood protection planning by the Corps, this time directed toward the multiple objectives of the Model Cities Plan: social well-being, environmental quality, and economic redevelopment. The Corps' plan, developed through a public involvement process and supported by the community, recommended traditional flood control measures such as concrete box culverts and trapezoidal and rectangular concrete channels, but also proposed a dirt trapezoidal channel on lower Wildcat Creek with some landscaping. Other features included a regional trail, a nature study area near Verde Elementary School along Wildcat Creek, and freshwater impoundments on ponds. Though Congress authorized the project in 1976, the community was unable to raise its required matching share of the costs. Consequently the plan could not be carried out.

Selected Plan

The Contra Costa County Board of Supervisors developed a plan called the "Selected Plan" in 1982, to be constructed in cooperation with the Corps of Engineers. The plan proposed a bare-bones structural flood control project without any environmental amenities. The Board of Supervisors presented the plan to the North Richmond community on a take-it-or-leave-it basis, arguing that it was the only affordable alternative. This approach, however, ran counter to the long history of active community involvement in the Richmond Model Cities Plan. Community leaders organized a meeting to determine public reaction to the plan; the issues raised during the meeting set the stage for a process to enable the community itself to develop a flood control plan.

Members of several North Richmond community groups, including the Richmond Neighborhoods Coordinating Council, the Urban Creeks Council, Save San Francisco Bay Association, and the Contra Costa County Shoreline Parks Committee, formed a coalition to request development of a plan which recognized the value of Wildcat and San Pablo Creeks. The coalition raised several environmental concerns about shortcomings of the county's proposed plan:

1) Wildcat Creek is one of the last remaining streams in the San Francisco Bay area with continuous riparian habitat along its length. The Selected Plan would replace this habitat with a concrete and earth-lined channel and covered box culverts.

2) Nationally prominent hydrologists felt that the Corps underestimated the creeks' sediment loads. The scientists feared that sedimentation from the flood control project would damage floodplain wetlands, reduce channel capacity and thus flood protection, and create costly maintenance needs.

3) The Selected Plan made no provision for improving recreational open space.

Other issues associated with the Selected Plan included safety hazards, necessary regulatory approval, local cost-sharing ability and the plan's

unattractiveness to other potential federal and state funding contributors because of its perspective on single-objective flood control. The County remained opposed to broadening the project's objectives, even though the Grizzly Peak Flyfishers, the East Bay Regional Park District, and the California Department of Fish and Game tried to increase public and political awareness of environmental issues by planting native trout in Wildcat Creek in September 1983. The coalition began an alternative approach called advocacy planning, in which it developed its own plan as an alternative to the County/Corps Selected Plan.

Modified Plan

The coalition solicited its own paid and unpaid experts to develop the plan. Financial assistance came from the Vanguard Foundation, the San Francisco Foundation, the Save San Francisco Bay Association, and the East Bay Regional Park District. The latter was an early supporter of a plan to extend regional trails from Wildcat Canyon and Point Pinole Shoreline Parks along Wildcat and San Pablo Creeks and their marshes. The coalition's planning budget totalled $50,000, enough to pay for the design of a flood control project on at least one of the creeks, though the design's principles and many of the details could be applied to both creeks.

Following a very different design philosophy than that of the Selected Plan, the coalition developed a Modified Plan for Wildcat Creek. The Plan proposed modifying the existing creek channels to simulate the natural hydraulic shape and processes of undisturbed streams, to deposit sediment in the upstream floodplain, and to restore riparian vegetation. Regional trails and park facilities were also included. The coalition's planners developed their own project cost estimates and funding plan. The coalition then presented the Modified Plan for comparison at each of the meetings, attended by the public and government agencies, at which the Selected Plan was presented.

In February 1985 the county Board of Supervisors approved the Selected Plan for construction, but left the door open for multi-objective designs if funds became available. Shortly afterward, both the U.S. Fish and Wildlife Service and the San Francisco Bay Conservation and Development Commission declined to approve the Selected Plan because of concerns about possible impacts to wetlands and endangered species from the project. Both agencies, however, were willing to support the Modified Plan as an alternative.

With implementation of the Selected Plan stalled, the planning process changed from one in which citizens were simply informed of an already completed plan to one in which citizens became active participants in developing the final plan. The Citizen Advisory Committee, with handpicked members who could be depended on to vote for the Selected Plan, was replaced by an open process in which anyone affected by the plan could help to determine the design. The new process used combined government-citizen design and funding teams that addressed a broader set of objectives and reached decisions through consensus.

Consensus Plan

The Board of Supervisors established a project design team to develop a Consensus Plan which would address the concerns of both the public and government agencies with regulatory

authority over the project. Team members included representatives from the U.S. Fish and Wildlife Service, the California State Lands Commission, the California Department of Fish and Game, the San Francisco Bay Conservation and Development Commission, the California Coastal Conservancy, the East Bay Regional Park District, legislators, the coalition, local land and nursery owners, the Contra Costa County Flood Control District and the Army Corps of Engineers. The team met monthly, sometimes even weekly, over the next three years.

The design team sought to develop a Consensus Plan which would be environmentally sensitive but still capable of conveying flood flows. The plan also needed to attract adequate funding to meet the local cost-sharing requirement so that the project could actually be implemented. Whenever possible, the plan substituted the natural floodplain features, setback levees and planted gabion walls of the Modified Plan for the standard trapezoidal dirt and riprap channels, rectangular concrete channels, and box culverts of the Selected Plan.

INNOVATIVE ASPECTS

Natural Channel Design

The Consensus Plan, as well as the Modified Plan that preceded it, followed a new design philosophy. The flood channels were modelled according to natural channel geometry rather than a hydraulic flume. This allowed the project to remain within the narrow 180-foot right-of-way width of the Selected Plan, even with riparian vegetation included along the channels. The 1976 Selected Plan had included riparian vegetation, but compensated with a right-of-way up to 250 feet wide. Using natural channel modelling, the vegetated channel of the Consensus Plan, within the narrow 180-foot right-of-way, still provided the same level of flood protection as the Selected Plan.

Sediment Management

An important factor that influenced the design was the need to manage large amounts of sediment carried by the streams, potentially impacting surrounding marsh and endangered species habitat. The Consensus Plan was designed to transport sediment past the areas where it would be most harmful, the marshes, and to deposit it along the upstream floodplain and in the bay, where its impact was minimized. In conventional flood control methods, low flow channels superimposed on typical open, wide-bottomed trapezoidal channels are braided and unstable, constantly changing as sediment is eroded from one place and deposited in another. In contrast, the Consensus Plan designed 10- to- 15-foot-wide meandering low flow channels to carry the creek's mean flows, to scour sediment, and to transport it in suspension at higher velocities. Flows could spread into the floodplains alongside, lose velocity and deposit sediment. The Selected Plan included a basin for sediment deposition; the Consensus Plan relocated this basin further upstream where it would better trap sediment.

Riparian Tree Restoration

Another guiding factor for the Consensus Plan was the protection and restoration of riparian trees. The Consensus Plan proposed planting trees along the low flow channels to guide channel formation and to shade the streams to prevent them from clogging with rushes, reeds and sediment. The amount of vegetation considered permissible along the

channel depends on the "roughness coefficient," which quantifies the flow resistance of the surface over which the water flows. Though the term implies objectivity, the "roughness coefficient" is actually assigned rather subjectively. The design team finally settled on roughness values which would allow trees and shrubs along the channels.

A common reason for limiting vegetation along the stream channels is that it can hinder channel maintenance. The Consensus Plan addressed this problem by developing an innovative maintenance plan for the vegetation. Because the channel design reflected a natural system in equilibrium and assumed a certain amount of sediment deposition in the calculation of channel capacity, the need for maintenance such as sediment excavation was reduced; a maintenance schedule was developed which was based on actual need rather than on an annual routine. The maintenance plan was designed to keep the low flow channels free of vegetation until a riparian canopy could grow to shade out the unwanted, clogging reed growth expected in exposed low flow channels. With this plan, costs as well as environmental impacts of maintenance, are reduced.

The county contracted with the Soil Conservation Service (SCS) to develop a revegetation plan to address the needs and concerns of various members of the design team. The SCS design objective was not to landscape a flood control project, but rather to restore a riparian environment along the low flow channels. Cuttings from nearby plants, seeds from California species native to the locale, and some container stock were used as plantings along the stream.

Funding

By transforming the project from a single-objective flood control project to a multi-objective project to restore marshes, provide educational opportunities, and enhance the environment, as well as to control flood damages, the County and the coalition made it possible to attract funding from state agencies that could not otherwise have contributed:

- The East Bay Regional Park District committed $793,000, matched by $793,000 from the Corps, for a regional trail system, and $19,000 for educational activities at a creekside school.
- The California State Lands Commission purchased $240,000 worth of land for the Wildcat Creek wetland transition zone.
- The California Coastal Conservancy committed $578,000 for marsh restoration and riparian enhancement areas.
- The California Department of Water Resources awarded a $100,000 grant because the project involved design innovations, citizen participation, and education.

ACCOMPLISHMENTS

THE CHANNEL DESIGNS developed for the Consensus Plan permitted riparian trees, yet remained within a narrow project right-of-way capable of conveying the 100-year flood. Through designs based on a model of a stable natural stream channel at equilibrium, rather than on a flume model, the Consensus Plan demonstrated that flood conveyance and stream channel vegetation do not have to be mutually exclusive. Additionally, the natural channel design reduced maintenance needs and the

associated costs and environmental impacts.

The County was unable to raise matching funds required to implement the earlier single-objective plans, and the plans did not address the areas of responsibility for the state agencies that could have provided funding. With the explicit multi-objective planning approach of the Consensus Plan, these agencies were able to contribute so that the project could be implemented.

The consensus planning process resulted in a plan for a flood control project which began construction within two years, breaking a twenty-nine-year impasse. This process considered the needs of federal, state and local agencies and community organizations as coequal. Their broad range of interests became the basis for the Consensus Plan which was developed and ultimately adapted. This process encouraged community self-determination, and ensured the development of a plan which had community support and could be carried out successfully.

Case study adapted from "Overcoming Federal Water Policies: The Wildcat-San Pablo Creeks Case," by Ann L. Riley, in Environment, December 1989.

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STATEMENT OF
THE EAST BAY CONSERVATION CORPS
IN SUPPORT OF THE WATERWAYS RESTORATION ACT OF 1994

Prepared for the July 19, 1994 Hearing of the

SUBCOMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES
HOUSE MERCHANT MARINE AND FISHERIES COMMITTEE

The East Bay Conservation Corps (EBCC) is pleased to submit this written statement in strong support of HR 4289, the Waterways Restoration Act, introduced by Representative Elizabeth Furse of Portland, Oregon.

This Act would create a new technical assistance and grants program for waterways restoration within the existing Watershed Protection Program of the Soil Conservation Service. In addition to supporting waterways restoration projects, this new program will provide for the employment and training of at-risk youth through the use of state and local conservation corps in the restoration projects.

Throughout its history the EBCC has always aimed to foster strong, positive connections between urban youth and their neighborhoods by performing work within these communities. Youth corps are extremely well-suited to work on large service projects, such as urban creek restorations, which require energetic teams of workers.

In recent years the EBCC has increased its role in the protection and restoration of urban streams, marshes, and coastlines. Through funding from California's Department of Water Resources we have collaborated with various agencies, cities, volunteer groups, and private citizens on stream bed and bank stabilization, habitat enhancement, revegetation of creek banks, and cleaning creeks of debris. Over the past few years, the EBCC has cleaned years of accumulation of debris from coast lines and lakeshores, cleared flood control channels, removed invasive exotic plants from sensitive sites, and planted native trees, shrubs, and grasses.

The benefits of this work well exceed the physical improvements to the sites. Many urban youth are far removed from first-hand experiences with creeks, lakes, and oceans. By working to restore these sites they have the opportunity to learn about natural ecosystems that are close to home. In addition, much of the stream work that the Corps undertakes attracts a large and diverse group

of volunteer workers from the local community, including school-aged children. Corpsmembers are often in charge of directing and supervising these volunteers - this opportunity to be a role model and to provide leadership is a valuable one for inner-city young people whose self-esteem is often low.

By focusing on high-need urban areas the Waterways Restoration Act will enable the East Bay Conservation Corps and many other local conservation and service corps to send more crews of youth and young adults to work in their own communities and thus strengthen the social and economic fabric of these overlooked neighborhoods. This placing of a priority on accomplishing projects in low income and ethnic minority communities ensures a powerful focus on environmental justice, a focus which we firmly endorse. We as a nation must begin to promote the stewardship of our environmental and human resources. The Waterways Restoration Act of 1994 does just that. For all of these reasons, we strongly urge the passage of HR 4289, the Waterways Restoration Act.

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Statement of
Donald F. McKenzie, Conservation Policy Coordinator

on
H.R. 4289, the Waterways Restoration Act of 1994

before the
U.S. House of Representatives
Committee on Merchant Marine and Fisheries
Subcommittee on Environment and Natural Resources

July 19, 1994.

Mr. Chairman:

The Wildlife Management Institute (WMI) appreciates this opportunity to submit this testimony on the Waterways Restoration Act of 1994. The Institute is a private, nonprofit scientific and educational organization staffed by professional natural resource managers. It has been dedicated to the restoration and improved management of wildlife and related natural resources since 1911.

The watershed approach to managing natural resources conceptually is the best perspective from which to identify water-related resource problems, as well as to plan and implement solutions. WMI strongly believes that this concept can help focus funds and energies to address highest priority needs. However, WMI believes equally strongly that the implementation of the Soil Conservation Service's (SCS) Small Watershed Program has undermined the merits of the concept of watershed management.

A Tradition of Subsidizing Marginal Agriculture at the Expense of Public Resources

The Watershed Protection and Flood Prevention Program (P.L. 83-566), more commonly known as the Small Watershed Program, was created in 1954. It authorized the Secretary of Agriculture to cooperate with states and local agencies in the planning and execution of water resource projects in watersheds of less than 250,000 acres.

The program has several sound elements that embody contemporary concepts of watershed management. It provides federal cost-share funds for matching by local governments. On average, local sponsors pay about one-third of all project costs. The program provides federal technical assistance for planning and implementation to those local governments. It fosters competitive bidding for funds, in theory awarding funds to the best projects.

However, it usually has been implemented in ways that are harmful to fisheries, wildlife and aquatic ecosystems. WMI has been monitoring the Small Watershed Program for decades. Most of that

time, our involvement has been to oppose projects and minimize the degradation of waterways and wetlands that too often results from the program. Ironically, our opposition always has been made while recognizing that the program has potential to achieve environmental as well as societal benefits.

There are several reasons for its poor environmental record. Too much emphasis has been placed on stimulating marginal, high-risk production on floodplain lands of agricultural commodities that already are in oversupply. Cost-share rates always have been and still are legislatively weighted toward short-term, high-impact structural activities and away from long-term solutions. Local project sponsors possess too much decision-making authority and too little federal guidance on acceptable and unacceptable activities. SCS generally has been extremely reluctant to interfere with local sponsors by criticizing or rejecting poor project decisions. Finally, the program always has been viewed by Congress as a prime vehicle to deliver federal dollars to constituents.

The record of accomplishment of the program is illustrative. More than 1,500 projects are completed, ongoing or in planning nationwide, affecting more than 100 million acres. Flood prevention--by damming and channelizing naturally functioning streams and rivers and isolating them from their floodplains by levees--is the primary purpose of more than 1,300 of these projects. Drainage is the primary purpose of more than 300. Only 231 projects were designed for watershed protection (using nonstructural land-treatment measures), 96 projects for fish and wildlife, and 41 for water quality. The program has completed 11,646 miles of channels in 47 states; 3,290 miles remain, pending ongoing SCS reviews and availability of funds. More than 8,000 dams have been constructed; more than 3,500 others are planned, approved and awaiting funding. The program itself has drained and/or made possible the drainage of millions of acres of wetlands.

WMI believes the myth on which PL-566 has been built is flawed. It should be apparent from the severe 1993 floods in the Midwest and those in 1994 in the Southeast that it is virtually impossible to control or prevent floods. Billions of dollars have been spent across the country over decades, yet floods continue and damages escalate.

Flood *damages*, however, can be controlled. Floods cause damage only when humans have encroached into the floodplain. Flood "control" activities, such as those conducted by PL-566, instill false confidences that often foster floodplain development. When the inevitable floods occur, taxpayers pay once again for bailouts. The end results of flood control activities under PL-566 have been continued flooding, increased flood damages, continued taxpayer expenditures for disaster relief, continued taxpayer costs for replacement and maintenance of structures, and dysfunctional waterways that usually provide reduced fish and wildlife habitat. Furthermore, all these consequences are the result of flood control activities conducted primarily to stimulate production on marginal land of agricultural commodities that already are in surplus as a result of other existing agriculture subsidies.

Time after time, money spent for traditional PL-566 projects that resulted in all the consequences outlined above, exceeded the funds necessary to simply move human activities out of the most flood-prone land by purchasing easements. For example, more than $1 million was spent on the 8,000-acre Ellison Creek Watershed project in Mississippi in the 1960s and 1970s to stimulate agricultural production. Due to failure of the channels and structures, another $1 million was spent to replace them in the early 1980s. Continuing failure of the structures now requires that another $1 million be spent for repair. More than $4 million in current dollars--equivalent to more than $500 per acre--has been spent for the purpose of stimulating agricultural production on flood-prone land valued at only $600-700 per acre. Floodplain easements and land treatment could have accomplished better results.

These types of activities, and their environmental impacts, continue still today. In the ongoing South Fork Watershed Project in Kansas, several flood-control dams are being installed to protect 7,214 acres of cropland at a projected federal cost of about $5.4 million. Thus, almost $750 will be spent per acre for dams to protect cropland that SCS estimates is worth only about $750 per acre. Those funds could have purchased easements on most of the floodplain cropland, restored natural vegetation, improved water quality and retained natural flood-reducing capacity of the floodplain. Instead, the project sponsors chose, and SCS agreed, to degrade the river and its wildlife by erecting dams.

The Small Watershed Program was authorized in 1990 to acquire wetland and floodplain easements, but its proponents have elected not to use that authority. One reason easements have not been used is that the federal cost-share rate for easements is only 50 percent, while the cost-share rate for structures such as dams, levees and channels is 100 percent. Another reason is that neither the program nor SCS places appropriate emphasis on such long-term, environmentally compatible solutions.

SCS, to its credit, recently has begun acknowledging problems with the program and is initiating administrative actions to solve them. For example, a review of the feasibility of the $2.2 billion in backlogged projects has begun, focusing especially on projects with structural components. Since March 1994, SCS has eliminated more than 2,000 miles of infeasible channels from the backlog of about 5,400. The agency indicates it will cut additional infeasible channels in the next year so that about 1,500 miles of approved channels remain in the project backlog. In addition, SCS recently has created interim guidelines on planning and installing nonstructural projects. Finally, the agency's evaluation criteria for proposed projects is stressing nonstructural measures more than ever. Only 1 percent of the first 800 PL-566 projects were for water quality. About 38 percent of the 100 projects currently being planned purportedly have water quality components.

However, administrative actions alone are not a sufficient solution to ensure this program and its proponents are cured of their addiction to quick-fix structural projects. A subsequent administration easily could undo these positive changes. The program's traditional supporters, especially at the local level, generally are committed to structural solutions and resistant to redirection by agency staff.

For example, even as SCS was pronouncing new directions and increased environmental sensitivity for the program early in 1993, the new Administration proposed its "Jobs Bill" with a potential funding windfall for PL-566. The ensuing scramble for projects for the new money caused a strong push from local sponsors as well as SCS staff and Congress to fund some of the old structural projects that had been waiting in the program's backlog for 20 years or more. This reaction provides strong evidence that the administrative reforms underway are tentative and easily could reverse if more permanent changes are not made legislatively.

Because of the deeply entrenched "culture" of PL-566 supporters, WMI's first preference would be to make a clean break with the past by eliminating the entire program and creating a new, environmentally compatible watershed planning and management program. However, if the existing program is to be retained and improved, WMI believes legislative changes to PL-566 are needed to ensure that most of its harmful elements are permanently eliminated or minimized, leaving the positive side of the program to flourish in the future. In addition, the existing limited opportunities in the program for ecological or fish and wildlife restoration need to be broadened and fostered by legislative action.

WMI believes H.R. 4289 offers sound, constructive solutions to many of these long-standing problems.

The Waterways Restoration Act Would Solve Many Problems

Most provisions of H.R. 4289 do not affect the entire PL-566 program but add a new, strong environmental restoration component to it. H.R. 4289 proposes what would be the best changes to occur to that program since its inception.

Section 3. of H.R. 4289 strikes the existing requirement that at least 20 percent of the total benefits of the program be directly realized by agriculture and rural communitites, thus making urban and suburban projects eligible. This country today is experiencing chronic overproduction of most subsidized agricultural commodities and increasing scarcity of functioning wetlands and waterways. In this scenario, there is no justification for continuing to operate this program as an additional subsidy that stimulates further overproduction on marginal, flood-prone lands of subsidized agricultural commodities at the expense of valuable public water resources.

Section 4.(m) sequesters not less than 20 percent of the total amount appropriated to PL-566 for the purposes of the Waterways Restoration Program. This requirement assures that no less than one-fifth of the funds appropriated to PL-566 would be used for environmental restoration, but allows unlimited room for that portion of the program to grow. WMI believes this minimum requirement is critical to ensuring that SCS and program proponents implement the Waterways Restoration Program. If the new program is added only as another option to be selected voluntarily, at the discretion of project sponsors, it likely would receive the same consideration as PL-566's easement acquisition authority.

This 20-percent requirement is a rallying point for fostering broader environmental interest in and support of PL-566 into the future. WMI has testified for years against appropriations for PL-566, and supported the Administration's recently stated intentions to phase out the program by FY 1996. Furthermore, we do not intend to support the existing program or its appropriations until strong, virtually irreversible changes are made such as those embodied in H.R. 4289. Once such changes are legislated, environmental organizations will be much more willing to begin supporting the program. However, if the 20-percent minimum is weakened or if the Waterways Restoration Program is added to SCS's budget as a separate line item, broader support for PL-566 likely will not be forthcoming.

This Waterways Restoration Program, as a component of PL-566, sets a primary purpose of achieving ecological restoration. This purpose is in constructive contrast with the primary purpose of PL-566--to prevent floods. Likewise, the descriptions of projects eligible for funding under the new program are laudable.

One of the most important elements of the Waterways Restoration Program is the elimination of structural projects from eligibility for funding from that program. Based on the forty-year track record, WMI believes such a legislative prohibition is essential to force needed changes in the entire PL-566 program.

H.R. 4289 creates a needed oversight mechanism to ensure only environmentally and economically sound projects are considered for funding. It would create in each state an Interdisciplinary Team with authority to review projects, make recommendations and elevate them for further review, if necessary.

Such an interdisciplinary oversight mechanism is long overdue as a way to *effectively* step down federal guidance to the local level. Checks and balances are needed to ensure that traditional PL-566 local project sponsors, which currently have authority to decide what type of projects will be designed, are

acting appropriately. SCS, which is authorized to provide technical assistance to design projects decided on by local sponsors, traditionally has neglected to provide the necessary guidance and authority to reject poor decisions made by local project sponsors. Other agencies lacking SCS's close ties to traditional PL-566 proponents should have more resolve to reject unsound projects.

Furthermore, Citizens Oversight Committees are created in each state to monitor implementation relative to the stated program objectives. These committees are essential as an additional layer of oversight to ensure this component of the program serves broader public interests than PL-566 traditionally has.

Improvements to H.R. 4289

WMI has only a few recommendations for improvements to H.R. 4289. First, we believe it is critical that the federal cost-share rates be revised to foster environmentally sound projects and discourage high-impact activities. H.R. 4289 should amend PL-566 to provide 75-percent cost-share for all activities. This change would make structural options less appealing, while land treatment and floodplain easements would be more attractive to local project sponsors.

Second, PL-566 should be amended so that the "Stream Obstruction Removal Guidelines" (SORG), produced in 1983 by The Wildlife Society, the American Fisheries Society, and the International Association of Fish and Wildlife Agencies, are to be used instead of channelization or intensive snagging and clearing when projects are conducted to restore streamflow capacity to reduce flooding. SORG is an environmentally sensitive method designed to aid in correcting stream problems and restoring normal flow, *when* decisions have been made to restore such flow. SORG is a positive alternative to channelization or intensive snagging and clearing. A copy of the Stream Obstruction Removal Guidelines is attached.

Third, the checks and balances provided by the interdisciplinary review teams need strengthening. The requirement that *two federal members* of the teams oppose a project before it is elevated will make the provision less effective or even ineffective in certain areas of the country. In locations where Environmental Protection Agency or National Marine Fisheries Service personnel cannot participate, the U.S. Fish and Wildlife Service likely will provide the only environmental conscience. WMI recommends one of two options: (1) reduce the number of dissentions required from two to one; or (2) allow state agencies--such as the fish and wildlife agency or the water quality agency--to cast dissenting votes.

Finally, in Section 4(l)(8), the definition of Stream Channel Quasi-equilibrium should be modified to read: "The term 'stream channel quasi-equilibrium' means restoring *historical* channel geometrics, meanders, and slopes so that channel dimensions *and floodplain zones* are appropriately sized...."

Mr. Chairman, WMI believes H.R. 4289 is a substantial step forward for the concept of the watershed approach to land and water resource management and for a program that always has had potential to make sound contributions to society and the environment. The proposed changes would greatly broaden the constituency for the Small Watershed Program. A group of traditional supporters of PL-566, the National Watershed Coalition, already has endorsed the bill in concept. A variety of environmental groups also has indicated support.

I also believe the recommendations offered by WMI would make a good bill even stronger. We urge your favorable consideration of this bill. Thank you for the opportunity to present our views.

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103D CONGRESS
2D SESSION

H. R. 4481

To restore the Nation's aquatic ecosystems through the voluntary cooperation of Federal, State, tribal, and corporate and other private interests.

IN THE HOUSE OF REPRESENTATIVES

MAY 24, 1994

Mr. HAMBURG (for himself, Mr. STUDDS, Mr. EDWARDS of California, Mr. MANTON, Mr. SANDERS, Ms. FURSE, Mr. HUGHES, Mr. HOCHBRUECKNER, Mr. RICHARDSON, Ms. WOOLSEY, Ms. PELOSI, Mrs. UNSOELD, Ms. ESHOO, and Mr. VENTO) introduced the following bill; which was referred jointly to the Committees on Merchant Marine and Fisheries and Public Works and Transportation

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A BILL

To restore the Nation's aquatic ecosystems through the voluntary cooperation of Federal, State, tribal, and corporate and other private interests.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Aquatic Ecosystem Restoration Act of 1994".

SEC. 2. FINDINGS, PURPOSES, POLICY, AND LONG-TERM GOALS.

(a) FINDINGS.—The Congress finds the following:

(1) Aquatic ecosystems, including wetlands, streams, rivers, lakes, estuaries, coastal marine ecosystems, and associated riparian upland habitats that buffer those areas from external factors, perform numerous valuable environmental functions which sustain environmental, social, and cultural values. They recycle nutrients, purify water, attenuate floods, augment and maintain streamflow, recharge ground water, act as primary producers in the food chain, provide habitat for plants, fish and wildlife, and other dependent species, and provide recreational opportunities.

(2) Physical and biological integrity of aquatic ecosystems is key to maintaining biodiversity and to providing for human and ecological health and safety.

(3) Degradation of the Nation's aquatic ecosystems and loss of aquatic biodiversity have reached alarming levels, affecting all waters of the United States, such that entire hydrologic systems and natural biodiversity of all forms of aquatic and riparian species are at risk.

(4) Federal policy has not devoted sufficient attention to the decline of aquatic and riparian ecosystems.

(5) Projects to restore and maintain aquatic ecosystems will provide both skilled and unskilled jobs to all regions of the country. After these ecosystems are restored, jobs dependent on these ecosystems will return, including fishing, hunting, recreation, resource protection and maintenance, and tourism jobs, and societal costs can be minimized with adequate maintenance of these ecosystems.

(6) A proactive approach to reverse the degradation of aquatic ecosystems will reverse the decline of certain aquatic habitat-dependent species and reduce the likelihood that these species will become so diminished as to become an impediment to sustainable development activities.

(7) Creation of partnerships between local citizens, tribal organizations, corporations, and State and Federal agencies is often critical to the success of aquatic ecosystem restoration activities.

(b) PURPOSES.—The purposes of this Act are the following:

(1) To provide a comprehensive and integrated framework to direct long-term national aquatic ecosystem restoration activities.

(2) To coordinate existing Federal programs and policies relating to aquatic ecosystem restoration

in order to provide the maximum benefit from Federal aquatic ecosystem restoration activities.

(3) To activate local, tribal, and State aquatic ecosystem restoration initiatives by providing technical expertise and funding to such entities.

(4) To create a dedicated source of funds to more effectively foster local, tribal, and State aquatic ecosystem restoration activities.

(c) POLICY.—It is the policy of the United States that—

(1) Federal, State, and local agencies, in consultation and collaboration with private citizen organizations, should plan and implement aquatic ecosystem restoration projects resulting in achievement of—

(A) the interim goals of a net restoration of 10,000,000 acres of wetlands, 400,000 miles of streams and rivers, and 1,000,000 acres of lakes (excluding the Great Lakes) by the year 2010; and

(B) long-term goals published by the Council under subsection (d); and

(2) the Federal Government should provide leadership and technical and financial assistance to State and local governments, tribal organizations,

and other management entities, and private citizens to plan, implement, monitor, and evaluate aquatic ecosystem restoration to improve and protect the Nation's aquatic ecosystems.

(d) LONG-TERM GOALS.—The Council shall—

(1) monitor achievement of the interim goals set forth in subsection (c)(1)(A); and

(2) upon determining that those interim goals have been achieved, establish and publish in the Federal Register long-term goals for aquatic ecosystem restoration projects planned and implemented by Federal, State, and local agencies.

SEC. 3. NATIONAL AQUATIC ECOSYSTEM RESTORATION STRATEGY.

(a) ESTABLISHMENT OF TASK FORCE.—

(1) IN GENERAL.—The President shall establish a task force within 90 days after the date of the enactment of this Act, to develop the National Aquatic Ecosystem Restoration Strategy in accordance with this section. The task force shall be known as the Aquatic Ecosystem Restoration Task Force.

(2) COMPOSITION.—The Task Force shall be composed of officials and scientists appointed by the President from Federal agencies involved in aquatic habitat or resource management, State agencies,

tribes, academic institutions, local management entities, and nongovernmental organizations.

(3) ADMINISTRATIVE EXPENSES.—The administrative expenses of the Task Force shall be paid on a pro-rata basis by all of the Federal agencies represented on the Task Force.

(4) TERMINATION.—The Task Force shall terminate on the later of—

(A) the submission of recommendations to the President under section 7(a); or

(B) the date of publication of the Strategy under subsection (b) of this section.

(b) STRATEGY.—

(1) IN GENERAL.—The Task Force shall, within 2 years after the date of the enactment of this Act, develop and publish in the Federal Register in accordance with this Act a plan for an interagency and intergovernmental process to develop, implement, monitor, and evaluate the national policy set forth in section 2(c). The plan shall be known as the National Aquatic Ecosystem Restoration Strategy.

(2) IMPLEMENTATION.—The Director of the United States Fish and Wildlife Service shall seek to implement the Strategy, including by providing as-

sistance to management entities conducting aquatic ecosystem restoration.

(3) CONTENTS.—The Strategy shall contain the following:

(A) Guidelines for coordination of aquatic ecosystem restoration projects within watersheds and ecoregions.

(B) National restoration milestones to meet the national policy set forth in section 2(c).

(C) Standards for identifying the most ecologically sound restoration projects possible through the utilization of available information. To the extent possible, such standards should be ecoregional.

(D) Measurable standards for each ecoregion for monitoring the success of aquatic ecosystem restoration projects.

(E) Guidelines for maintaining pristine and successfully restored aquatic ecosystems.

(F) Identification of riparian, floodplain, wetlands, and other aquatic habitats that retain, or could easily be restored to support, significant indigenous fish, wildlife, and plant populations, by coordinating existing surveys of wa-

tersheds. To the extent existing surveys are inadequate, the Task Force shall recommend a procedure for conducting additional surveys.

(G) Guidelines for setting ecoregional and national aquatic ecosystem restoration priorities which will result in the greatest ecological return on investment.

(H) Mechanisms for ensuring access to and sharing of information and providing technical assistance to State agencies, tribal organizations, and management entities.

(I) Recommendations to the Congress regarding legislation to remove obstacles to aquatic ecosystem restoration and achieve the national policy set forth in section 2(c).

(J) Recommendations for periodic scientific review of the Strategy by State, Federal, and independent scientists to incorporate new information, including a schedule for reviews and revisions by the Director under subsection (d).

(K) Procedures for disseminating new information regarding aquatic ecosystem restoration to management entities and State, tribal,

and Federal agencies involved in implementing the Strategy.

(L) Recommendations for reorganizing aquatic ecosystem restoration activities on an ecoregional basis.

(M) Recommendations for additional Federal incentives to encourage aquatic ecosystem restoration on non-Federal lands.

(4) CONSIDERATIONS IN DEVELOPING THE STRATEGY.—In developing the Strategy, the Task Force shall take into consideration—

(A) the national policy set forth in section 2(c);

(B) the recommendations contained in the National Research Council's 1992 report on Restoration of Aquatic Ecosystem with regard to the restoration of aquatic ecosystems; and

(C) the recommendations contained in the 1994 National Science Foundation's Freshwater Initiative with regard to the restoration of aquatic ecosystems.

(c) SUBCOMMITTEE.—The Task Force shall establish a subcommittee that shall—

(1) identify Federal regulatory and nonregulatory aquatic ecosystem restoration policies and programs that affect aquatic ecosystems,

(2) evaluate the roles of those policies and programs in promoting or degrading aquatic ecosystem health,

(3) evaluate changes to current operation and maintenance procedures that would restore aquatic ecosystem functions,

(4) recommend appropriate times to reevaluate those policies and programs,

(5) recommend mechanisms to coordinate implementation of Federal policy and programs for the purpose of aquatic ecosystem restoration,

(6) identify the portion of the national policy set forth in section 2(c) that can be achieved on Federal lands, and

(7) establish appropriate responsibilities and measurable objectives for each agency involved in achieving the restoration goals under section 2(c).

(d) REVIEW AND REVISION OF STRATEGY.—The Director shall periodically review and revise the Strategy to reflect the best available information regarding aquatic ecosystems, aquatic resources restoration techniques, and watershed and ecosystem management. The Director shall

make such reviews and revisions at least as often as recommended in the Strategy pursuant to subsection (b)(3)(J).

(e) INTERIM FUNDING.—The Director, subject to the availability of appropriations, may make grants to fund appropriate aquatic ecosystem restoration projects before publication of the Strategy.

SEC. 4. AQUATIC ECOSYSTEM RESTORATION ASSISTANCE.

(a) PROVISION OF ASSISTANCE.—

(1) IN GENERAL.—The Foundation, subject to the availability of amounts deposited into the Fund, shall provide financial assistance to a management entity in accordance with this section for carrying out each aquatic ecosystem restoration project for which the Council approves that assistance in accordance with this section.

(2) PRIORITY.—The Foundation shall provide assistance under this subsection in accordance with the priorities specified by the Council under subsection (c)(4).

(b) APPLICATION FOR ASSISTANCE.—

(1) APPLICATION.—A management entity seeking assistance under this section for an aquatic ecosystem restoration project shall submit an applica-

tion to the Service regional office for the Service region in which the project will be carried out.

(2) TECHNICAL ASSISTANCE.—The Director shall ensure that technical assistance is provided to management entities.

(3) FORWARDING OF APPLICATIONS TO COUNCIL.—The head of a Service regional office shall forward to the Council each application for assistance received by that office.

(c) REVIEW AND APPROVAL OF PROPOSED PROJECTS BY COUNCIL.—

(1) REVIEW AND DETERMINATIONS.—The Council shall—

(A) review each application for assistance that is forwarded by the head of a Service regional office under subsection (b)(2); and

(B) determine whether the aquatic ecosystem restoration project proposed by the application—

(i) will assist in implementing the Strategy;

(ii) under the criteria set forth in paragraph (2), is appropriate for funding under this section;

(iii) to the extent practicable, will return damaged or degraded aquatic ecosystems to the full range of their natural functions and values;

(iv) does not employ management actions that favor one function, value, or species to the detriment of, or without regard for, others; and

(v) will fulfill the purposes of this Act.

(2) PROJECT SELECTION CRITERIA.—The Council shall determine, under paragraph (1)(B), whether a project is appropriate for funding under this section based on the following criteria:

(A) The technical feasibility of the project.

(B) The cost-effectiveness of the project, including minimization of future operation and maintenance costs.

(C) The expected duration of the aquatic ecosystem restoration to be carried out under the project.

(D) The extent to which habitat to be restored under the project is degraded.

(E) The extent of non-Federal participation in payment of the costs of the project.

(F) The relationship of the project to a watershed, ecosystem, or other landscape approach or plan.

(G) The potential benefits of the project to fish and wildlife resources of special concern and to the diversity of other natural functions and values inherent in aquatic resources.

(H) The aquatic ecosystem restoration opportunities that the project will provide on lands that are not eligible for restoration under the Wetlands Reserve Program.

(I) The extent to which the project will involve a high degree of cooperation between Federal and non-Federal entities.

(J) The extent to which sites at which the project is conducted will pose a continuing contaminant threat to fish and wildlife species using the sites after restoration or will require chemical restoration to provide restoration of beneficial uses.

(K) The availability of other Federal funding sources to carry out the project.

(L) Whether the project will substantially contribute to long-term restoration of water quality.

(M) The extent to which the project will train and employ individuals who reside in the area where the project will be carried out, particularly individuals displaced from resource-dependent industries.

(3) APPROVAL OF PROJECTS.—The Council may approve assistance under this section for an aquatic ecosystem restoration project if the Council makes affirmative determinations under paragraph (1)(B)(i), (ii), (iii), (iv), and (v).

(4) NOTIFICATION OF FOUNDATION.—The Council shall promptly notify the Foundation of approval of assistance under this section for an aquatic ecosystem restoration project, specifying the priority of the project for assistance under this section relative to other projects for which the Council has approved such assistance.

SEC. 5. NATIONAL AQUATIC RESTORATION COUNCIL.

(a) ESTABLISHMENT.—There is established a council to be known as the National Aquatic Restoration Council.

(b) MEMBERSHIP.—

(1) IN GENERAL.—The Council shall consist of 15 members, as follows:

(A) 4 members, of whom one 1 shall be appointed by each of—

(i) the Under Secretary of Commerce for Oceans and Atmosphere,

(ii) the Administrator of the Environmental Protection Agency,

(iii) the Chief of the Soil Conservation Service, and

(iv) the Secretary of the Army.

(B) 10 members appointed by the Director, of whom 2 shall be appointed as representatives of each of the following:

(i) State fish and wildlife management agencies.

(ii) Tribal fish and wildlife management agencies.

(iii) Academic scientists.

(iv) Local watershed councils.

(v) Non-governmental organizations.

(C) The Director.

(2) EXPERIENCE REQUIRED.—An individual shall not be eligible for appointment as a member of the Council unless the individual has experience in aquatic ecosystem restoration.

(3) TERMS OF MEMBERS.—The term of a member of the Council shall be 3 years.

(c) CHAIRPERSON.—The Director or another member of the Council designated by the Director shall be the chairperson of the Council.

(d) MEETINGS.—

(1) IN GENERAL.—The Council shall meet at least once each year to consider projects for approval of assistance under section 4.

(2) QUORUM.—9 members present at a meeting of the Council shall constitute a quorum.

(e) PAY.—An individual shall not receive any pay, allowance, or benefits by reason of service as a member of the Council.

(f) TRAVEL EXPENSES.—Each member of the Council shall receive travel expenses, including per diem in lieu of subsistence, in accordance with sections 5702 and 5703 of title 5, United States Code.

(g) COUNCIL EXEMPTED.—The Federal Advisory Committee Act (5 U.S.C. App. 1) shall not apply to the Council.

SEC. 6. AQUATIC ECOSYSTEM RESTORATION FUND.

(a) ESTABLISHMENT.—There is established on the books of the Treasury a separate account which shall be known as the Aquatic Ecosystem Restoration Fund.

(b) CONTENTS.—The Fund shall consist of—

(1) amounts deposited into the Fund under section 7; and

(2) such other amounts as may be appropriated to the Fund.

(c) USE.—

(1) IN GENERAL.—Amounts in the Fund shall be available to the Foundation subject to appropriations, for—

(A) providing assistance under section 4, including payment of administrative expenses incurred by the Fund in providing that assistance;

(B) reimbursing members of the Council who are not officers or employees of the Federal Government for travel and transportation expenses under section 5(f); and

(C) paying expenses of administering the Fund.

(2) LIMITATION ON USE FOR ADMINISTRATIVE EXPENSES.—Not more than 10 percent of amounts deposited into the Fund each fiscal year shall be available to pay administrative expenses under paragraph (1)(A) or (C) or reimbursement under paragraph (1)(B) with respect to costs incurred in that fiscal year.

SEC. 7. SOURCES OF FUNDING.

(a) RECOMMENDATIONS.—

(1) IN GENERAL.—Not later than 1 year after the date of the enactment of this Act, the Task Force shall submit to the President and publish in the Federal Register recommendations for sources of amounts for deposit into the Fund, consisting of fees imposed for use or degradation of water resources.

(2) AMOUNT.—In identifying sources under paragraph (1), the Task Force shall seek to provide the Fund with such funding as may be required to fulfill the purposes set forth in section 2(b).

(b) REVIEW BY PRESIDENT.—Not later than 60 days after publication of the recommendations of the Task Force under subsection (a)(1), the President shall—

(1) disapprove the recommendations and transmit the disapproval and the reasons for the disapproval to the Task Force and the Congress; or

(2) approve the recommendations and transmit to the Congress and the Secretary a copy of the recommendations and certification of that approval.

(c) CONSIDERATION BY CONGRESS.—

(1) IN GENERAL.—If the recommendations of the Task Force are approved and transmitted to the Congress by the President under subsection (b)(2), they shall be effective and apply as if enacted as

part of this Act unless disapproved by a joint resolution enacted by the Congress before the earlier of—

(A) the end of the 60-day period beginning on the date of the transmission of certification of that disapproval under that subsection; or

(B) an adjournment of Congress sine die for the session in which the report is transmitted.

(2) CALCULATION OF PERIODS.—For purposes of paragraph (1), the days on which either House of Congress is not in session because of an adjournment of more than 3 days to a day certain shall be excluded in the computation of a period.

(d) DEPOSIT INTO FUND.—Amounts received by the United States pursuant to recommendations of the Task Force that are effective under subsection (c) shall be deposited into the Fund.

SEC. 8. DEFINITIONS.

In this Act:

(1) AQUATIC ECOSYSTEM.—The term "aquatic ecosystem" includes wetlands, streams, rivers, lakes, estuaries, coastal marine ecosystems, and associated riparian upland habitats that buffer those areas from exterior factors.

(2) AQUATIC ECOSYSTEM RESTORATION.—The term "aquatic ecosystem restoration" means returning an aquatic ecosystem to a close approximation of its condition prior to its disturbance by humans, such that its structure and function (including chemical, physical, hydrological, geomorphological, and biological characteristics) are repaired, its natural dynamic processes are operating effectively again, and its indigenous biota are returned to predisturbance levels to the greatest extent possible.

(3) COUNCIL.—The term "Council" means the National Aquatic Restoration Council established by section 5(a).

(4) DIRECTOR.—The term "Director" means the Director of the United States Fish and Wildlife Service.

(5) ECOREGION.—The term "ecoregion" means a continuous geographical area characterized by—

(A) the occurrence of one or more important ecological associations that differ, at least in proportional area covered, from the associations of adjacent regions.

(B) distinctive flora, fauna, climate, landform, soil, vegetation, and ecological climax; and

(C) essentially similar ecological relationships between plant species and soil and climate.

(6) FOUNDATION.—The term "Foundation" means the National Fish and Wildlife Foundation.

(7) FUND.—The term "Fund" means the Aquatic Ecosystem Restoration Fund established by section 6(a).

(8) MANAGEMENT ENTITY.—The term "management entity" means an agency of a State, tribal, or local government, a regional planning organization, a conservation district, or any other public, private, or nonprofit entity which has adequate authority to carry out aquatic ecosystem restoration projects with assistance under this Act.

(9) SECRETARY.—The term "Secretary" means the Secretary of the Interior.

(10) STRATEGY.—The term "Strategy" means the National Aquatic Ecosystem Restoration Strategy developed and published under section 3(b)(1) and revised under section 3(e).

(11) TASK FORCE.—The term "Task Force" means the Aquatic Ecosystem Restoration Task Force established under section 3(a)(1).

(12) WATERSHED COUNCIL.—The term "watershed council" means a representative group of local watershed residents (including private, public, government, corporate, and nonprofit organizations) organized to develop and implement watershed restoration.

SEC. 10. AUTHORIZATION OF APPROPRIATIONS.

(a) IN GENERAL.—There is authorized to be appropriated to the Fund, subject to subsection (b)—

(1) $30,000,000 for fiscal year 1995;

(2) $40,000,000 for fiscal year 1996; and

(3) $50,000,000 for each of fiscal years 1997, 1998, and 1999.

(b) REDUCTION OF AMOUNT AUTHORIZED.—The amount authorized to be appropriated to the Fund under subsection (a) for a fiscal year shall be reduced by the amount that will be deposited into the Fund for the fiscal year under section 6(b)(1).

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103D CONGRESS
2D SESSION

H. R. 4289

To amend the Watershed Protection and Flood Prevention Act to establish a Waterways Restoration Program, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 21, 1994

Ms. FURSE (for herself, Mr. DELLUMS, Mr. EVANS, Mr. HOCHBRUECKNER, Mr. RICHARDSON, Mr. SHAYS, Ms. NORTON, Ms. WOOLSEY, Mr. MILLER of California, Ms. ESHOO, Mr. DEFAZIO, Mr. MCDERMOTT, Mr. WYDEN, Mr. STUDDS, Mr. HAMBURG, Mr. BARRETT of Wisconsin, Mrs. UNSOELD, Ms. MCKINNEY, Mr. SANDERS, Mr. DICKS, Mr. RANGEL, and Ms. VELÁZQUEZ) introduced the following bill; which was referred jointly to the Committees on Agriculture, Merchant Marine and Fisheries, and Public Works and Transportation

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A BILL

To amend the Watershed Protection and Flood Prevention Act to establish a Waterways Restoration Program, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Waterways Restoration Act of 1994".

SEC. 2. FINDINGS AND POLICY.

(a) FINDINGS.—Congress finds that—

(1) restoring degraded streams, rivers, wetlands, and other waterways to their natural state is a cost effective and environmentally sensitive means to control flooding, excessive erosion, sedimentation, and nonpoint pollution, including stormwater runoff;

(2) protecting and restoring watersheds provides critical ecological benefits by restoring and maintaining biodiversity, providing fish and wildlife habitat, filtering pollutants, and performing other important ecological functions;

(3) waterway restoration and protection projects can provide important economic benefits by rejuvenating waterfront areas, providing recreational opportunities, and creating community service jobs and job training opportunities in environmental restoration for disadvantaged youth, displaced resource harvesters, and other unemployed residents; and

(4) restoring waterways helps to increase the fishing potential of waterways and restore diminished fisheries, which are important to local and regional cultures and economies and to low income and ethnic cultural groups who rely heavily on fish as a food source.

(b) POLICY.—Therefore, Congress declares it in the national interest to—

(1) protect and restore the chemical, biological, and physical components of streams and rivers and associated wetland systems such that the biological and physical structures, diversity, functions, and dynamics of the stream and wetland ecological systems are restored;

(2) replace deteriorating stormwater structural infrastructures and physical waterway alterations that are environmentally destructive with cost effective, low maintenance, and environmentally sensitive projects;

(3) promote the use of nonstructural means to manage and convey streamflow, stormwater, and flood waters;

(4) increase the involvement of the public and youth conservation and service corps in the monitoring, inventorying, and restoration of watersheds in order to improve public education, prevent pollution, and develop coordinated citizen and governmental partnerships to restore damaged waterways; and

(5) benefit business districts, local economies, and neighborhoods through the restoration of waterways.

SEC. 3. WORKS OF IMPROVEMENT DEFINED.

The second paragraph of section 2 of the Watershed Protection and Flood Prevention Act (16 U.S.C. 1002; relating to works of improvement) is amended by striking the following: "Each project must contain benefits directly related to agriculture, including rural communities, that account for at least 20 percent of the total benefits of the project.".

SEC. 4. WATERWAYS RESTORATION PROGRAM.

The Watershed Protection and Flood Prevention Act (16 U.S.C. 1001–1008; 1010) is amended by adding at the end the following:

"SEC. 14. WATERWAYS RESTORATION PROGRAM.

"(a) ESTABLISHMENT.—The Secretary, acting through the Chief of the Soil Conservation Service, shall establish and implement a Waterways Restoration Program in accordance with the requirements of this section. Under the program, the Secretary shall provide technical assistance and grants, on a competitive basis, to eligible entities to assist such entities in carrying out waterway restoration projects.

"(b) PROJECT ELIGIBILITY.—

"(1) PROJECT OBJECTIVES.—A project shall be eligible for assistance under the program if the project is designed to achieve ecological restoration

or protection and 1 or more of the following objectives:

"(A) Flood damage reduction.

"(B) Erosion control.

"(C) Stormwater management.

"(D) Water quality enhancement.

"(2) LOCATION OF PROJECTS.—A project may be carried out under the program on Federal lands or on State or private lands in any case in which the State or the private land owner is a sponsor or co-sponsor of the project.

"(3) PROJECT DESCRIPTIONS.—Projects eligible for assistance under the program shall include projects for any of the following purposes:

"(A) Restoration and monitoring of degraded waterways, including revegetation, restoration of biological communities, and changes in land management practices.

"(B) Reestablishment of stream channel quasi-equilibrium.

"(C) Restoration or establishment of wetland and riparian environments as part of a multiobjective stormwater management system in which the restored or established areas provide stormwater storage, detention, and reten-

tion; nutrient filtering; wildlife habitat; and increased biological diversity.

"(D) Reduction of runoff.

"(E) Stream bank restoration using the principles of biotechnical slope stabilization.

"(F) Creation and acquisition of multi-objective floodplain riparian zones, including removal of natural or humanmade levees, for floodwater and sediment storage, wildlife habitat, and recreation.

"(G) Removal of culverts and storm drains to establish natural environmental conditions.

"(H) Organization of local watershed councils in conjunction with the implementation of on-the-ground action education or restoration projects.

"(I) Training of participants, including youth conservation and service corps program participants, in restoration techniques in conjunction with the implementation of on-the-ground action education or restoration projects.

"(J) Development of waterway restoration or watershed plans which are intended for use within the grant agreement period to implement specific restoration projects.

"(K) Restoration of any stream channel to reestablish a meandering, bankfull flow channel, riparian vegetation, and floodplain in order—

"(i) to restore the functions and dynamics of a natural stream system to a previously channelized waterway; or

"(ii) to convey larger flood flows as an alternative to a channelization project.

"(L) Release of reservoir flows to restore riparian and instream habitat.

"(M) Watershed or wetland programs that have undergone planning pursuant to other Federal, State, tribal, or local programs and laws and have received necessary environmental review and permits.

"(N) Early action projects which a watershed council wants to implement prior to the completion of its required final consensus watershed plan, if the project is determined to meet the council's watershed management objectives and is useful in fostering citizen involvement in the planning process.

"(4) PRIORITY PROJECTS.—Projects which have the following attributes shall be given priority by

interdisciplinary teams established under this section in determining funding priorities:

"(A) Projects located in or directly benefiting low-income or economically depressed areas adversely impacted by poor watershed management.

"(B) Projects that will restore or create businesses or occupations in the project area.

"(C) Projects providing opportunities for participants in Federal, State, tribal, and local youth conservation and service corps and provide training in environmental restoration, monitoring, and inventory work.

"(D) Projects serving communities composed of minorities or Native Americans, including the development of outreach programs to facilitate the participation by such groups in the program.

"(E) Projects identified as regional priorities that have been planned within a regional context and coordinated with Federal, State, tribal, and local agencies.

"(F) Projects that will restore wildlife or fisheries of commercial, recreational, subsistence, or scientific concern.

"(G) Projects training and employing fishers and other resource harvesters whose livelihoods have been adversely impacted by habitat degradation.

"(H) Projects providing significant improvements in ecological values and functions in the project area.

"(I) Projects previously approved under this Act which meet or are redesigned to meet the requirements of this section.

"(5) COST-BENEFIT ANALYSIS.—A project shall be eligible for assistance under the program if an interdisciplinary team established under this section determines that the local social, economic, ecological, and community benefits of the project based on local needs, problems, and conditions equal or exceed the financial and social costs of the project.

"(6) FLOOD DAMAGE REDUCTION.—Projects for which one of the purposes is to reduce flood damages shall be designed for the level of risk selected by the local cosponsors and sponsors to best meet their needs for reducing flood risks, their ability to pay project costs, and community objectives to protect or restore environmental quality.

"(7) INELIGIBLE PROJECTS.—Projects involving channelization, stream bank stabilization using methods other than biotechnical slope protection methods, or construction of reservoirs shall not be eligible for assistance under the program.

"(c) PROGRAM ADMINISTRATION.—

"(1) DESIGNATION OF PROGRAM ADMINISTRATORS.—The Secretary shall designate a program administrator for each State who shall be responsible for administering the program in the State. Except as provided by paragraph (2), the Secretary shall designate the State Conservationist of the Soil Conservation Service of a State as the program administrator of the State.

"(2) APPROVAL OF STATE AGENCIES.—

"(A) IN GENERAL.—A State may submit to the Secretary an application for designation of a State agency to serve as the program administrator of the State.

"(B) CRITERIA.—The Secretary shall approve an application of a State submitted under subparagraph (A) if the application meets the following criteria:

"(i) Demonstration of the ability of the State agency to solicit, select, and fund

projects within a 1-year grant administration cycle.

"(ii) Demonstration of the responsiveness of the State agency to the administrative needs and limitations of small nonprofit organizations and low income or minority communities.

"(iii) Demonstration of the success of the State agency in implementing State or local programs with objectives similar to the objectives of this section.

"(iv) Demonstration of the ability of the State agency to jointly plan and implement with Indian Tribes programs with objectives similar to this section.

"(C) REDESIGNATION.—Whenever the Secretary determines, after a public hearing, that a State agency with an approved application under this paragraph no longer meets the criteria set forth in subparagraph (B), the Secretary shall so notify the State and, if appropriate corrective action has not been taken within a reasonable time, withdraw the designation of the State agency as the program administrator of the State and designate the State

Conservationist of the Soil Conservation Service of the State as the program administrator of the State.

"(3) TECHNICAL ASSISTANCE.—The State Conservationist of a State shall continue to carry out the technical assistance portion of the program in the State even if the State receives approval of an application submitted under subparagraph (A).

"(d) GRANT APPLICATION CYCLE.—

"(1) IN GENERAL.—Grants under the program shall be awarded on an annual basis.

"(2) GRANT AGREEMENTS.—The program administrator of a State may enter into a grant agreement with an eligible entity to permit the entity to phase-in a project under the program for a period of not to exceed 3 years; except that any such project shall remain subject to reevaluation each year as part of the annual funding cycle.

"(e) SELECTION OF PROJECTS.—

"(1) APPLICATIONS.—In order to receive assistance to carry out a project under the program in a State, an eligible entity shall submit to the program administrator of the State an application which is in such form and contains such information as the Secretary may by regulation require.

"(2) REVIEW OF APPLICATIONS BY INTERDISCIPLINARY TEAMS.—

"(A) TRANSMITTAL.—Each application for assistance under the program received by the program administrator of a State shall be transmitted to the interdisciplinary team of the State established pursuant to this section.

"(B) REVIEW.—On an annual basis, the interdisciplinary team of each State shall—

"(i) review applications transmitted to the team pursuant to subparagraph (A);

"(ii) determine the eligibility of proposed projects for funding under the program;

"(iii) make recommendations concerning funding priorities for such eligible projects; and

"(iv) transmit its findings and recommendations to the program administrator of the State.

"(C) PROJECT OPPOSITION BY FEDERAL REPRESENTATIVES.—If 2 or more of the members of an interdisciplinary team of a State appointed pursuant to clause (ii), (iii) or (iv) of subsection (f)(2)(B) are opposed to a project

which is supported by a majority of the members of the interdisciplinary team, a determination on whether the project may receive assistance under the program shall be made by the Chief of the Soil Conservation Service. In making a determination under this subparagraph, the Chief shall consult with the Administrator of the Environmental Protection Agency, the Director of the Fish and Wildlife Service, and, in coastal areas, the Assistant Administrator of the National Marine Fisheries Service. The Secretary shall conduct such monitoring activities as are necessary to ensure the success and effectiveness of project determinations made pursuant to this subparagraph.

"(3) FINAL SELECTION.—The final determination on whether to provide assistance for a project under the program shall be made by the program administrator of the State and shall be based on the recommendations of the interdisciplinary team of the State transmitted pursuant to paragraph (2)(B).

"(f) APPOINTMENT OF INTERDISCIPLINARY TEAMS.—

"(1) IN GENERAL.—There shall be established in each State an interdisciplinary team of specialists

to assist in reviewing project applications under the program.

"(2) APPOINTMENT.—The interdisciplinary team of a State shall be composed of the following members:

"(A) APPOINTEES OF THE PROGRAM ADMINISTRATOR.—Individuals to be appointed on an annual basis by the program administrator of the State, including at least 1 representative of each of the following specialties:

"(i) Hydrologists.

"(ii) Plant ecologists.

"(iii) Aquatic biologists.

"(iv) Biotechnical slope protection experts.

"(v) Landscape architect or planners.

"(vi) Members of the agricultural community.

"(vii) Representatives of the fish and wildlife agency of the State.

"(viii) Representatives of the soil and water conservation agency of the State.

"(B) REPRESENTATIVES OF FEDERAL AGENCIES.—One representative of each of the following Federal agencies to be appointed on

an annual basis by the appropriate regional or State director of the agency:

"(i) The Soil Conservation Service.

"(ii) The Environmental Protection Agency.

"(iii) The National Marine Fishery Service (in coastal States).

"(iv) The United States Fish and Wildlife Service.

"(3) AFFILIATION OF MEMBERS.—Members appointed pursuant to paragraph (2)(A) may be employees of Federal, State, tribal, or local agencies or non-profit organizations.

"(4) FEDERAL ADVISORY COMMITTEE ACT.—The requirements of the Federal Advisory Committee Act (5 U.S.C. App. 1 et seq.) shall not apply to an interdisciplinary team established under this subsection.

"(g) CONDITIONS FOR RECEIVING ASSISTANCE.—

"(1) PROJECT SPONSORS AND COSPONSORS.—

"(A) REQUIREMENT.—In order to be eligible for assistance under the program, a project shall have as project participants both a citizens organization and a State, regional, tribal, or local governing body, agency, or district.

"(B) PROJECT SPONSOR.—One of the project participants described in subparagraph (A) shall be designated as the project sponsor. The project sponsor shall act as the principal party making the grant application and have the primary responsibility for executing the grant agreement, submitting invoices, and receiving reimbursements.

"(C) PROJECT COSPONSOR.—The other project participant described in subparagraph (A) shall be designated as the project cosponsor. The project cosponsor shall, jointly with the project sponsor, support and actively participate in the project. There may be more than 1 cosponsor for any project.

"(2) USE OF GRANT FUNDS.—Grant funds made available under the program shall not supplant other available funds for waterway restoration projects, including developer fees, mitigation, or compensation required as a permit condition or as a result of a violation of the Federal Water Pollution Control Act or any other law.

"(3) MAINTENANCE REQUIREMENT.—At least 1 project sponsor or cosponsor shall be designated as responsible for on-going maintenance of the project.

"(h) NON-FEDERAL SHARE.—

"(1) IN GENERAL.—Except as provided by paragraph (2), the non-Federal share of the cost of a project under this section, including structural and non-structural features, shall be 25 percent.

"(2) ECONOMICALLY DEPRESSED COMMUNITIES.—The Secretary may waive all or part of the non-Federal share of the cost of any project that is to be carried out under the program in an economically depressed community.

"(3) IN-KIND CONTRIBUTIONS.—Non-Federal interests may meet any portion of the non-Federal share of the cost of a project under this section through in-kind contributions, including contributions of labor, involvement of youth service and conservation corps program participants, materials, equipment, consulting services, and land.

"(4) REGULATIONS.—Not later than 1 year after the date of the enactment of this section, the Secretary shall issue regulations to establish procedures for granting waivers under paragraph (2).

"(i) LIMITATIONS ON COSTS OF ADMINISTRATION AND TECHNICAL ASSISTANCE.—Of the total amount made available in any fiscal year to carry out this section—

"(1) not to exceed 15 percent may be used for administrative expenses; and

"(2) not to exceed 25 percent may be used for providing technical assistance.

"(j) CONSULTATION WITH FEDERAL AGENCIES.—In establishing and carrying out the program under this section, the Secretary shall consult with the heads of appropriate Federal departments and agencies, including the Administrator of the Environmental Protection Agency, the Assistant Secretary of the Army for Civil Works, the Director of the United States Fish and Wildlife Service, the Commissioner of the Bureau of Reclamation, the Director of the Geological Survey, the Chief of the Forest Service, and the Assistant Administrator for the National Marine Fishery Service.

"(k) CITIZENS OVERSIGHT COMMITTEE.—

"(1) ESTABLISHMENT.—The Governor of each State shall establish a citizens oversight committee to evaluate management of the program in the State. The membership of a citizens oversight committee shall represent a diversity of regions, cultures, and watershed management interests.

"(2) COMPONENTS TO BE EVALUATED.—Program components to be evaluated by a citizens over-

sight committee established under paragraph (1) are as follows:

"(A) Program outreach, accessibility, and service to low income and minority ethnic communities and displaced resource harvesters.

"(B) The manageability of grant application procedures, contracting transactions, and invoicing for disbursement for small nonprofit organizations.

"(C) The success of the program in supporting the range of the program objectives, including evaluation of the environmental impacts of the program as implemented.

"(D) The number of jobs created for identified target groups.

"(E) The diversity of job skills fostered for long-term watershed related employment.

"(F) The extent of involvement of youth conservation and service corps programs.

"(3) ANNUAL REPORT.—The program administrator of each State shall issue an annual report summarizing the program evaluation under paragraph (1). Such report shall be signed by each member of the citizens oversight committee of the State and shall be submitted to the Secretary.

"(4) FEDERAL ADVISORY COMMITTEE ACT.—The requirements of the Federal Advisory Committee Act (5 U.S.C. App. 1 et seq.) shall not apply to a citizens oversight committee established under this subsection.

"(l) DEFINITIONS.—For the purposes of this section, the following definitions apply:

"(1) BIOTECHNICAL SLOPE PROTECTION.—The term 'biotechnical slope protection' means the use of live and dead plant material to repair and fortify watershed slopes, roadcuts, stream banks, and other sites vulnerable to excessive erosion, using such systems as brush piling, brush layering, brush matting, fascines, joint plantings, and wood cribwalls.

"(2) CHANNELIZATION.—The term 'channelization' means removing the meanders and vegetation from rivers and streams for purposes of accelerating storm flow velocities, filling habitat to accommodate land development and existing structures, and stabilizing banks with concrete or riprap.

"(3) ELIGIBLE ENTITY.—The term 'eligible entity' means—

"(A) any tribal or local government, flood control district, water district, conservation district (as defined by section 1201(a)(2) of the

Food Security Act of 1985 (16 U.S.C. 3801(a)(2)), agricultural extension 4–H program, nonprofit organization, or watershed council; and

"(B) any unincorporated neighborhood organization, watershed council, or small citizen nongovernmental or nonprofessional organization for which an incorporated nonprofit organization acts as a fiscal agent.

"(4) FISCAL AGENT.—The term 'fiscal agent' means an incorporated nonprofit organization that—

"(A) acts as a legal entity which can accept government or private funds and pass them onto an unincorporated community, cultural, or neighborhood organization; and

"(B) has entered into a written agreement with such an unincorporated organization that specifies the funding, program, and working arrangements for carrying out a project under the program.

"(5) NONPROFIT ORGANIZATION.—The term 'nonprofit organization' means any organization with tax exempt status under section 501(c)(3) of the Internal Revenue Code of 1986.

"(6) PROGRAM.—The term 'program' means the Waterways Restoration Program established by the Secretary under subsection (a).

"(7) SECRETARY.—The term 'Secretary' means the Secretary of Agriculture acting through the Chief of the Soil Conservation Service.

"(8) STREAM CHANNEL QUASI-EQUILIBRIUM.—The term 'stream channel quasi-equilibrium' means restoring channel geometries, meanders, and slopes so that channel dimensions are appropriately sized to the watershed and its slope, bankfull discharges, and sediment sizes and transport rates for the purpose of correcting excessive channel erosion and deposition.

"(9) WATERSHED COUNCIL.—The term 'watershed council' means a representative group of local watershed residents (including the private, public, government, and nonprofit sectors) organized to develop and implement a consensus watershed restoration plan that includes restoration, acquisition, and other activities.

"(10) WATERWAY.—The term 'waterway' means any natural, degraded, seasonal, or created wetland on private or public lands, including rivers, streams, riparian areas, marshes, ponds, bogs,

mudflats, lakes, and estuaries. Such term includes any natural or humanmade watercourse on public or private lands which is culverted, channelized, or vegetatively cleared, including canals, irrigation ditches, drainage ways, and navigation, industrial, flood control, and water supply channels.

"(11) YOUTH CONSERVATION AND SERVICE CORPS.—The term 'youth conservation and service corps program' means a full-time, year-round youth corps program or a full-time summer youth corps program described in section 122(a)(2) of the National and Community Service Act of 1990 (42 U.S.C. 12572(a)(2)).

"(m) FUNDING.—

"(1) MINIMUM AMOUNTS.—Not less than 20 percent of the total amount appropriated to carry out this Act for any fiscal year beginning after September 30, 1994, shall be used by the Secretary to carry out this section.

"(2) TRANSFERRED FUNDS.—The Secretary may accept transfers of funds from other Federal departments and agencies in order to carry out the objectives of this section.

"(3) APPLICABILITY OF REQUIREMENTS.—Funds made available to carry out this section, and

financial assistance provided with such funds, shall not be subject to any requirements of this Act other than the requirements of this section.".

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103D CONGRESS
2D SESSION

H. R. 4408

To protect and restore the anadromous fish habitat in the Russian River of Northern California and its tributaries, and to provide for a pilot project to test and demonstrate the benefits of main stem river channel restoration.

IN THE HOUSE OF REPRESENTATIVES

MAY 12, 1994

Mr. HAMBURG (for himself and Ms. WOOLSEY) introduced the following bill; which was referred jointly to the Committees on Merchant Marine and Fisheries and Public Works and Transportation

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A BILL

To protect and restore the anadromous fish habitat in the Russian River of Northern California and its tributaries, and to provide for a pilot project to test and demonstrate the benefits of main stem river channel restoration.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Russian River Fisheries and Riverbed Restoration Act".

SEC. 2. FINDINGS.

The Congress finds the following:

(1) California's Russian River and its tributaries contain anadromous fish resources that are an important component of the local, regional, and State commercial and sport recreational fisheries. The commercial and recreational harvest of Russian River salmon and steelhead has historically made an important contribution to local economies.

(2) The Russian River supported one of the most productive steelhead fisheries in North America as recently as 1940.

(3) In the recent past, the Russian River supported an abundant population of coho salmon and still contains a remnant population of this species, which has been proposed for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

(4) The Russian River provides numerous other beneficial uses to the many people who inhabit its basin. The River is a source of drinking and irrigation water, a popular destination for recreational water sports enthusiasts, the soil source for prime agricultural bottom lands, the primary local source of aggregate resources, and the source of hydroelectric power generated by 2 major dams.

(5) Development of the Russian River for beneficial uses has resulted in the degradation of the river system's riparian areas, streambed, water quality and stream flows. The net result of construction and operation of dams and agricultural water diversions, water conveyance from the Eel River, past gravel mining, timber harvest practices, road building activities, and residential and agricultural development of flood plains has been a substantial degradation of fish habitat in the River. These environmental alterations have caused a major decline in salmon and steelhead fish populations in the River, and have also had a negative impact on several other beneficial uses.

(6) The Federal Government, through the construction of Coyote Dam in Mendocino County and Warm Springs Dam in Sonoma County and the Russian River Flood Control Project, is substantially responsible for the loss and degradation of fish habitat in the River.

(7) Overlapping Federal, State, and local jurisdictions have historically hampered fishery conservation efforts and prevented the Federal Government and the State of California from fulfilling their re-

sponsibilities to protect the River's anadromous fishery resources.

(8) The California Department of Fish and Game has authority under State law to direct the restoration of the State's anadromous fishery resources in accordance with comprehensive river basin anadromous fisheries restoration plans. The department is in the process of developing a basin plan for the Russian River.

(9) The California State Coastal Conservancy is in the process of producing a resource enhancement and restoration plan for the main stem of the Russian River.

SEC. 3. PURPOSES.

The purposes of this Act are the following:

(1) To protect and restore the River's anadromous fish habitat for the purpose of optimizing production of salmon and steelhead.

(2) To foster cooperation between Federal, State, and local agencies in protecting, restoring, and enhancing the River's anadromous fishery resources.

(3) To construct a pilot project for the purpose of testing and demonstrating the benefits of large

scale main stem river channel restoration and stream corridor management.

(4) To review the operation of Federal dam and flood control projects and assess the environmental impacts of their operation on the River.

(5) To provide matching funds, if necessary, for the development of the Program Plan, and to provide funds to begin implementation of the Program Plan and for monitoring and evaluating implementation of the program.

SEC. 4. PILOT PROJECT TO REESTABLISH RIVER CHANNEL AND FLOODWAY; FISH HABITAT RESTORATION PROJECTS.

(a) RIVER CHANNEL AND FLOODWAY PROJECT.—The Administrator shall conduct 1 or more pilot projects on the main channel of the River which may be identified in the Resource Plan, to demonstrate measures to reestablish a channel and floodway in dynamic equilibrium with the River and to prevent the down cutting of the River bed. The goals of the pilot projects shall be to create in-stream fish and wildlife habitat, reduce bank erosion and loss of riparian vegetation, and accommodate high flows without accompanying damage to land or property. To the extent practicable, activities on the main river channel under the pilot project shall be integrated with projects

on tributaries and basin-wide water management, and shall account for the physical and ecological interdependency within the watershed. This project will only be completed with willing landowners. The Administrator may contract with the California State Coastal Conservancy to carry out the pilot projects.

(b) FISH HABITAT RESTORATION PROJECT.—The Chief, working through the Resource Conservation Districts and with the California Department of Fish and Game, shall carry out high priority fish habitat restoration projects on the River's tributaries or watershed restoration projects that are identified in and are consistent with the objectives of the Program Plan.

(c) COOPERATION WITH OTHER AGENCIES.—The Administrator and the Chief shall work with the United States Fish and Wildlife Service, National Marine Fisheries Service, Army Corps of Engineers, and the State of California in carrying out activities under this section.

(d) GRANTS TO STATES.—The Administrator and the Chief shall use their existing authorities to award grants or contracts (or both) to State or local agencies (or both) to carry out this section and for monitoring activities under this section.

(e) REPORT.—Not later than September 30, 1996, the Administrator and the Chief shall each report to the

Congress on progress made toward implementing this section.

(f) REVIEW OF COYOTE DAM AND WARM SPRINGS DAM.—

(1) REVIEW.—The Secretary in consultation with the Director of the United States Fish and Wildlife Service shall review the effects of the operation and water release schedule of the Coyote Dam in Mendocino County on bank erosion problems, river channel down cutting, decreases in ground water supplies and scour of riparian habitat. The Secretary shall identify alternative release schedules which will reduce adverse impacts along the River and provide fisheries habitat benefits. The Secretary shall also review channel clearing and maintenance measures currently required along the Alexander Valley reach of the River channel as part of the Russian River Flood Control project for their adverse environmental effects on fisheries habitat in the River. The Secretary shall identify alternative measures which reduce bank erosion problems and promote riparian and fisheries habitat restoration while providing the same or higher level of flood water channel capacity as the original 1955 Federal project. Further, the Secretary shall review the ef-

fects that operation of Warm Springs dam will have on fish habitat in Dry Creek and downstream reaches of the River, including potential effects that the project will have on the middle reach of the River when fully operational.

(2) REPORT.—Not later than September 30, 1996, the Secretary shall report to the Congress the results of the reviews under this subsection.

SEC. 5. RUSSIAN RIVER BASIN ADVISORY COMMITTEE.

(a) ESTABLISHMENT.—There is established an advisory committee which shall be composed of not more than 20 people selected by the Chief in consultation with the Administrator. The committee shall be representative of the various groups with an interest in the Russian River and shall be selected according to the following guidelines:

(1) Members of the Russian River Enhancement Plan Technical Advisory Committees established by the California State Coastal Conservancy shall be considered if they choose to serve.

(2) Membership shall include representatives of organized fishery groups even if not presently on the Russian River Enhancement Plan Technical Advisory Committees.

(3) Membership shall be balanced geographically between Mendocino and Sonoma Counties.

(4) Membership shall include representatives of State and Federal agencies involved in managing river natural resources but there shall be no more than 6 such members.

(b) FUNCTIONS.—The advisory group shall advise and assist the Administrator and the Chief regarding the implementation and monitoring of the activities authorized by this Act.

(c) CHAIRMAN; MEETINGS.—The chairman of the advisory committee shall be a representative of a river fishery group who is chosen by majority vote of the advisory committee. The term of an individual as chairman shall be 2 years. The chairman shall call meetings of the advisory committee at least 4 times each year. The advisory committee, in consultation with the Administrator and the Chief, may establish its own order of business.

SEC. 6. DEFINITIONS.

In this Act:

(1) The term "Administrator" means Administrator of the Environmental Protection Agency, acting through the Regional Administrator for the ninth region.

(2) The term "Chief" means the Chief of the Soil Conservation Service.

(3) The term "Program Plan" means the Russian River Basin Andromous Fisheries Restoration Plan being developed by the California Department of Fish and Game.

(4) The term "Resource Plan" means the Russian River Resource Enhancement Plan being developed by the California State Coastal Conservancy.

(5) The term "River" means the Russian River in California.

(6) The term "Secretary" means the Secretary of the Army.

SEC. 7. AUTHORIZATION OF APPROPRIATIONS.

There is authorized to be appropriated $7,000,000 for carrying out this Act for fiscal years beginning after September 30, 1993. $4,000,000 shall be allocated for the tributary restoration which shall include a maximum of $500,000 for completion of the Program Plan and a maximum of $100,000 for support services for the Basin Advisory Committee. $3,000,000 shall be allocated for the riverbed restoration pursuant to the Resource Plan. Such sums shall remain available until expended. A portion of the funding shall be used for Federal staff for accomplishing the goals.

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CALIFORNIA DEPARTMENT
OF WATER RESOURCES

URBAN
STREAM
RESTORATION
PROGRAM

WORKING TOGETHER TO:
- *RESTORE WATERSHEDS,*
- *REDUCE PROPERTY DAMAGES,*
- *AND RENOVATE TOWN CENTERS.*

ORIGINS and OBJECTIVES of the URBAN STREAM RESTORATION PROGRAM

The Department of Water Resources (DWR) Urban Stream Restoration Program began in 1985 when a coalition of local water management districts, neighborhood organizations, sport fishing, environmental groups, service organizations and city and county governments sponsored the creation of a new urban stream restoration and flood control program. The objectives of the program are to assist communities in reducing damages from stream bank and watershed instability and floods while restoring the environmental and aesthetic values of streams, and to encourage stewardship and maintenance of streams by the community. The program provides technical assistance to communities in designing solutions to flooding and bank stability problems and developing land use regulations to manage floodways and riparian environments. The program also provides grants on an annual cycle for on-site stream restoration work, design of restoration and flood damage reduction plans, organizing volunteer maintenance and monitoring projects, and acquisition of green belts along streams.

Communities are beginning to develop flood reduction and bank stabilization plans that rely more on local resources because conventional federally assisted flood control projects have been plagued with long delays, rising local costs and unacceptable environmental and social impacts to the community. This program is an effort of state government to offer assistance to these local efforts. This pamphlet briefly describes the kinds of less expensive damage reduction measures that can be used by communities and provides examples of projects using these techniques already implemented in California.

Counties, cities and non-profit organizations are eligible to receive grants from the Urban Stream Restoration Program. The program's enabling legislation requires that the proposed projects restore or enhance the aesthetic, recreational, fish and wildlife values of the waterways. Proposals which stress community involvement are given a high priority. Small neighborhood, community organizations or service groups are encouraged to apply by making arrangements with non-profit organizations or local governments to be their sponsor. Typically, the Department of Water Resources mails out requests for grant proposals in the fall months. Proposals are reviewed in December or January and then arrangements for the transfer of grant monies to the successful applicants are made in the winter and spring. Project completion is usually expected within a year from the time the grant is awarded. To qualify, an applicant needs to have two objectives: first, the restoration of environmental resources and, second, addressing a problem of watershed stabilization or flooding.

San Luis Obispo, California. Some local governments such as Napa, San Luis Obispo, and Mariposa County have based their downtown development projects around the restoration of a central city stream.

EXAMPLES OF DEPARTMENT OF WATER RESOURCES ASSISTED STREAM RESTORATION PROJECTS

The following projects are selected for description in this pamphlet in order to give examples of the range of activities that have been awarded grants by the Department of Water Resources.

■ *BUTTE ENVIRONMENTAL COUNCIL AND STREAMINDERS*

□ *LITTLE CHICO CREEK, DEAD HORSE SLOUGH, AND LINDO CHANNEL*

"Streaminders", a local volunteer organization, has worked with the public school system in the racially-mixed, low-to-moderate income Chapman neighborhood of Chico, to develop community interest in maintaining the two streams through their area. The project has included conducting classroom educational programs, stream sign making projects, cleanup projects, and vegetation management volunteer work projects. An additional objective has been to improve fish habitat. By working with volunteer groups including Moose Lodge members, Girl Scouts, Boy Scouts, Chico Flyfishers, and others, the Streaminders also coordinated restoration projects on Lindo Channel. One project uses an innovative "Palmiter" bank stabilization technique using staked dead and live vegetation to deflect stream flows and restore an eroding bank. Assistance with project design and implementation was provided by Butte County, the City of Chico, the Soil Conservation Service, and Chico State University.

Stream restoration along Lindo Channel included a broad spectrum of the community.

Little Chico Creek, Chico, California. Children can be an important part of a community's stream restoration plan; this sign on Little Chico Creek reflects their enthusiasm about the creek.

Lindo Channel, Chico, California. Members of the California Conservation Corps are securing dead vegetation "deflectors" to divert flows away from an eroding bank.

■ *MARIPOSA COUNTY*

□ *MARIPOSA CREEK*

Mariposa County has been using their Stream Restoration Program grant for the purposes of developing Mariposa Creek as an economic asset to the town of Mariposa located on the route to Yosemite National Park and to prevent damage from eroding stream banks. The management plans have been developed by donated help from local engineers and professionals and from California Polytechnic State University (Cal Poly) at San Luis Obispo. Ultimately, Mariposa hopes to draw visitors to their town's creek green belt.

The Mariposa Arts Council is assisting the county government by coordinating stream clearing, restoration and public access projects on Mariposa Creek. The projects involve carrying out stream surveys and channel and bank stabilization using plans developed by the Soil Conservation Service and the Department of Fish and Game. A volunteer advisory committee from Cal Poly has developed a plan for public access and has been organizing an effort to acquire dedications of land easements from creekside property owners. It is hoped this plan will prevent problems from encroachment on the floodplain. The California Youth Authority and the Mother Lode Job Training Agency which employs summer youth have provided labor for selective clearing work.

■ *CITY OF PLEASANT HILL and FRIENDS OF CREEKS IN URBAN SETTINGS (FOCUS)*

□ *GRAYSON, MURDERERS and MATSON CREEKS*

FOCUS is composed of neighbors living in the Grayson, Murderers and Matson Creek watersheds in Contra Costa County who organized in order to develop a less expensive plan than previous flood control proposals while preserving the aesthetic assets of the creeks. The plan is being developed by a team designated by the county. The team consists of citizen participants, their consultants, the county flood control district, and the U.S. Army Corps of Engineers. A community stream cleanup, revegetation and educational events were organized and a continuing volunteer channel maintenance program is planned.

■ *MONTEREY PENINSULA WATER MANAGEMENT DISTRICT*

□ *CARMEL RIVER*

Severe winters of 1980 and 1983 have left eroded banks along the Boronda and Schulte reaches of the Carmel River, endangering homes and other property. This innovative plan developed by the Monterey Peninsula Water Management District and supported by the Carmel River Watch and the Peninsula League of Women Voters uses extensive plantings of willow cuttings along the riparian corridor to help stabilize the river meanders. The plan is based on the idea of restoring the river's equilibrium by redirecting the flows along a former, stable alignment, using the vegetation to help redirect the flow.

Carmel River, California. Willow cuttings were planted along the Carmel River as a part of a plan to protect adjacent property and bridge abutements from the river meander.

■ *COMMUNITY ACTION BOARD and RESOURCE CONSERVATION DISTRICT OF SANTA CRUZ COUNTY*

□ *BORREGAS CREEK*

Borregas Creek is located within a housing development in Aptos where serious erosion of the channel is endangering the adjacent properties. The restoration work has been conducted by the Community Action Board (CAB) which works under contract with the Job Training and Partnership Act of the local Private Industry Council to cover half of the crew wages. This aspect of the grant contributes toward training of the Santa Cruz County unemployed. The grant is being supported by contributions to CAB by the Dean Witter Foundation. Soquel High School's Agriculture class is providing volunteer labor, tools and materials.

■ *REDWOOD COMMUNITY ACTION AGENCY - CITY OF FERNDALE, HUMBOLDT COUNTY*

□ *FRANCIS CREEK*

Francis Creek runs through the center of the City of Ferndale, and has created both flooding and bank instability problems for buildings adjacent to the creek. Landowners have individually modified the creek channel, often without permits and frequently with the result that more serious problems have been created downstream.

This grant has been used to accomplish two tasks. First, the City Council of Ferndale is working with the staff from the non-profit Redwood Community Action Agency to develop a management plan with local landowners and officials so that logical and coordinated projects will be done in the future. Second, bank protection work will be carried out next to Fireman's Hall which is in immediate danger from bank failure. The design work for the bank protection project was donated by a local Registered Engineering Geologist, and the Humboldt County Public Works Department and the City are donating materials. The Ferndale Fire Department is donating labor to the project. A failed concrete crib-wall will be removed, the site drainage plan changed, and the creek bank will be re-built and revegetated.

■ *RICHMOND BOULEVARD NEIGHBORHOOD ASSOCIATION*

□ *GLEN ECHO CREEK, OAKLAND*

The flood of 1982 damaged a rock wall along Glen Echo Creek located in central Oakland. The neighborhood organization used a stream restoration grant and obtained rock donated from local utilities to rebuild a hand placed rock wall. The rock wall was interplanted with native plants. This aesthetic addition to the neighborhood effectively stabilized the creek slopes in the 1986 flood which followed.

Glen Echo Creek, Oakland, California. A dry rock wall was hand built by the Richmond Boulevard Association in Oakland.

STREAM RESTORATION AND FLOOD DAMAGE REDUCTION MEASURES ELIGIBLE FOR STREAM RESTORATION GRANTS

The Stream Restoration Program can support the following and related restoration techniques. This is not meant to be a complete listing of restoration or flood damage reduction techniques. A list of sources which provide information on a wide range of measures is provided at the end of this pamphlet. The Department is also interested in supporting reasonable experiments and innovations.

GREENBELT FLOODWAYS, BY-PASSES, RETENTION BASINS, FLOOD-PROOFING, RELOCATION OF STRUCTURES, AND LAND USE PLANNING

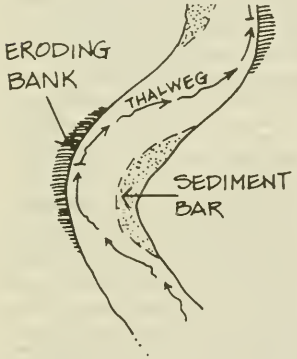
Property damages can efficiently be avoided by allowing flood flows to occur in natural floodplains or greenbelts, by-passes and retention basins specifically set aside to hold flood flows. Lands reserved to accommodate the natural phenomenon of stream meandering and overbank flows can also serve as parks, recreation areas, wildlife refuges and preserves, jogging, bicycle and hiking trails, and educational areas. In this case the strategy is to avoid the location of structures or incompatible land uses in the areas of potential hazards. Flood-proofing serves to modify structures in a flood hazard area, and can include the redesign of buildings, and elevating structures to provide protection against flood damages. Sometimes relocation of a structure is a better solution in the long run than attempting to modify the stream.

Streams naturally overflow their banks on a frequent basis. The terraces and floodplains adjacent to a stream's flow channel are as much as part of the stream as the channel itself, yet there is a history of planners and builders developing these areas nonetheless. It is development within this zone which, not surprisingly, is subject to damages from bank erosion caused by the changing dynamics and meanders of a stream and from overbank flows. The most desirable solution to reducing damages from floods and bank erosion is to place structures which can be harmed by the natural forces of streams out of the path of the potential hazard.

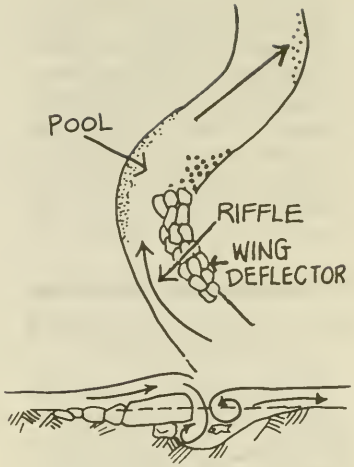
Land use regulations enacted to protect the health and safety of the public from overbank flows, bank erosion, and landslides have a long history of legal acceptance and provide numerous public benefits at the least cost. Regulations which include the objectives to control erosion, protect riparian vegetation and control run-off from new development are also gaining in use and address multiple objectives to reduce floods, improve water quality, and conserve wildlife habitat, and instream biological values, including fisheries. The Urban Stream Restoration Program both provides assistance in the drafting of local regulatory ordinances and its grants program can provide funds for the design and acquisition of flood easements, greenbelts, floodways, retention basins, and by-passes, flood-proofing and relocation of structures.

■ *LOW-FLOW CHANNELS, FLOOD PLAINS, POOLS, RIFFLES, AND MEANDER SEQUENCES*

Natural streams have an equilibrium in which the components of the fluvial system including the watershed, length, slope, width and depth of the channel, floodplain, and channel bedforms evolve in relationship with each other. This equilibrium determines the nature of the eroding, transporting, sorting, and depositional processes of streams. The equilibrium can be upset by land-use activities, channelization or other modifications. It is possible to help design more stable streams by incorporating these fluvial characteristics of low-flow channels, floodplains, meandering channels and pool and riffle sequences into the design of channel modification projects. Meanders provide a process of transporting sediments and building floodplains; pools and riffles maintain a natural sorting of bed-load materials, facilitate a diversity of stream bank vegetation and provide habitats necessary for the feeding, breeding, and cover for in-stream life. The stability and environmental values of a stream can be improved by returning these diverse components to a channelized or damaged stream.



MEANDER SEQUENCE



DEFLECTORS AND ROCK CLUSTERS FOR DEVELOPING POOLS AND RIFFLES

In situations in which a channel must be modified to accommodate increased flows from urbanization, a channel design which includes the components of a natural fluvial system (in their proper relationship to one another) will be better able to develop a new equilibrium. Additionally, it will provide a stability and reduction in the maintenance problems inherent in channelization projects. Channel enlargement projects can be designed which retain a more natural low-flow channel, and which include appropriately spaced meanders. Some projects have used a single bank modification design in which only one bank is disturbed by widening and the widening is done in a way to retain the existing meander sequence. Channel capacity should be designed to accommodate natural riparian growth along both sides of a meandering low-flow channel. Another option for accommodating increased urban runoff is to direct excess flood flows into

an additional by-pass channel or conduit to save the natural values of the existing channel.

Features that can improve habitat in damaged or modified channels can include sills (low structures to create upstream pools or downstream scours); deflectors for developing scour holes and riffles; rock clusters, and cover devices such as brush mats anchored to banks to provide fish habitat; and structures to enhance fish passage such as fish ladders.

■ *CHANGES IN SITE DRAINAGE OR LAND MANAGEMENT*

Before a stream restoration technique can be prescribed, the cause of the problems must be identified and corrected. Usually the problem can be traced to excess run-off from urban development (such as paved roads or residences) in the watershed, or problems with culverts, or land management activities such as clearing of riparian vegetation. Perhaps nearby grazing has damaged a stream corridor.

Run-off from buildings can be retained on-site in appropriately designed retention basins, permeable landscaped areas or rainwater cisterns. Culverts are frequently clogged, undersized, or put in at the wrong slope, resulting in damages upstream and downstream of the culvert. Sometimes it can be advantageous to remove culverts and reslope the channel banks to restore the channel to a more natural geometry. Occasionally, concrete fords can be used in lieu of culverts for road crossings. Bank erosion, vegetation denudation, downstream sedimentation and instability caused by grazing somewhere in the watershed can be dramatically and quickly remedied by fencing the livestock from the channel.

Sonoma County, California. Friends of Sonoma Creek select and remove obstructions in the creek to prevent undesirable deflection of the stream flow and increase channel capacity.

■ *CHANNEL CLEANING AND OBSTRUCTION REMOVAL*

Urban streams can be notorious for the garbage, junk and debris they collect, ranging from old stoves and shopping carts to log jams. Removing these obstructions can not only significantly change the aesthetics of the stream, but can also bring significant flood damage reduction benefits by increasing the capacity of the stream channel and lowering the stage of flood waters. Selective clearing of vegetative growth and branch and log snags is a long practiced strategy of increasing the channels' capacity to pass flood flows. The Stream Restoration Program funds neighborhood organizations or volunteer groups to maintain channels and instill a sense of stewardship for the stream as a valuable natural resource. As a part of this effort, the program supports public education efforts and school programs.

Snagging and clearing proposals must be planned with the assistance of biologists who can ensure that the project will be both enhancing the habitat values of the stream while also increasing the channel capacity. An excellent guide for the design of snagging and clearing projects is *Stream Obstruction Removal Guidelines*, cited at the end of this pamphlet under "Additional Sources of Information". The objectives of selective clearing and

snagging are to remove major obstructions to the high flows, to prevent bank erosion from flows deflecting off debris, and to retain pools and riffles for fish habitat. The retention of adequate vegetation along the banks of channels prevents erosion, and provides shade and abundant, diverse habitats for wildlife.

Wildcat Creek, San Pablo and North Richmond, CA. The San Pablo Leo's Club (Junior Chapter of the Lions Club) and students of Verde School clean-up Wildcat Creek.

■ *REVEGETATION*

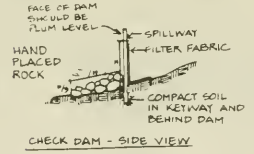
Vegetation exhibits many qualities which make it well suited for streambank protection. A binding network of roots increases the shear strength of the soil. The flexibility and resilience of vegetation acts to increase roughness and to reduce local flow velocity, counteracting the forces of erosion and shear stress. Vegetation creates a canopy, providing shade and cover for animals and fish, and enhances the aesthetic qualities of the stream.

Replanting of a stream is one of the most simple methods of restoration. Native riparian plants should be chosen, and plantings can most effectively be carried out in the fall. Container stock may be used but the use of live cuttings from nearby willows, alders or other native riparian species can be more successful at less cost.

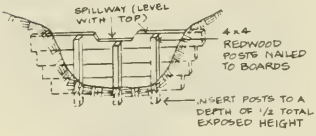
"Soil Bioengineering" techniques are now enjoying a revival. These methods include the use of structures such as logs, cribwalls, rock gabions, fences, etc. to help plants become established on difficult sites and ultimately provide long term stability through revegetation. These techniques stress the use of natural, locally available materials such as rock, timber, and vegetation in contrast to the more expensive and less flexible concrete or steel. Some examples of "bioengineering" techniques that can be used in stream stabilization projects are described in the following sections. These techniques save on material costs and are more labor intensive and so conservation corps, or even volunteers are used to carry out the work.

■ *CHECK DAMS*

Check dams can be constructed with logs gathered near the site of the restoration project, cut from planks of long weathering wood such as redwood or Douglas fir, or made from hay bales secured with re-bar. Check dams are used as grade control structures and energy dissipators in which sediment accumulates above the small dams and produces gentler channel gradients. A waterfall develops over the dam which can then substantially reduce the flow energy. Check dams can help the revegetation of severe gullies by checking headward erosion or badly eroding stream channels by storing sediment, retaining water on site for longer periods of time, and reducing flow velocities.



CHECK DAM - SIDE VIEW



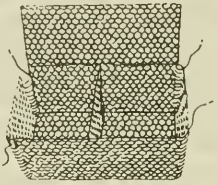
CHECK DAM - FRONT VIEW

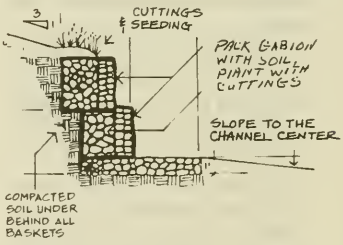
The California Conservation Corps can provide a dependable and skilled work force for stream restoration projects.

■ *GABIONS*

Gabions are wire baskets filled with rocks, that are wired together to form a continuous bank stabilization structure. Gabions can be used instead of concrete in areas of limited right-of-way, where the stream has been forced into a narrow passage by encroachment of structures, and where the channel banks are too steep for other kinds of protection. Gabions are flexible and porous and can eliminate hydrostatic pressure by allowing bank seepage. Their use is promoted by the Stream Restoration Program only if they support revegetation of the channel. The gabions should have soil packed in with the rocks and be planted with cuttings of native riparian species. Filter cloth can be used if needed to help retain the soil. As the vegetation matures, the durability and permancy of the installation increases.

TYPICAL GABION CAGE

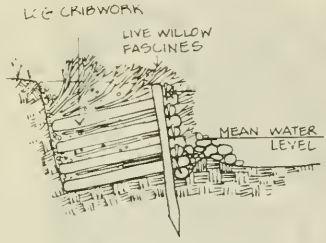




GABION BASKETS STACKED IN STAIRSTEP FASHION TO FORM A CONTINUOUS REVETMENT

■ *WOOD CRIB WALLS*

A cribwall is a rectangular framework of logs in which the wood members are essentially assembled in a log-cabin fashion. The structure is built sloping back against steep slopes for situations which require a retaining wall for stability. The rectangular cells formed by the structure are filled with soil and/or rocks to provide strength and weight. Many crib walls built by the mining industry in the early 1900s are still in place today. Crib walls provide the advantage of incorporating revegetation by planting through the slats in the structure as part of the slope stabilization. This structure can be used as a stabilization measure on steep banks with high velocity flows. As the vegetation grows, the installation achieves a natural appearance. The projects can be designed so that plant material can take over the structural function of slope stability by the time the timbers begin to rot.



WOOD CRIB WALL

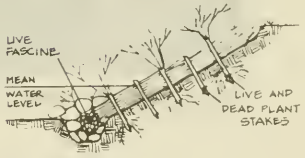
■ *LIVE FASCINES OR WATTLES*

Live fascines (sometimes called wattles) are sausage-shaped bundles of live plant cutting wired together and secured into the stream bank with live or dead stakes. Most often, the bundles are placed on slopes parallel to the contour, and they are also used in combination with other vegetation stabilization methods. They are used to protect banks for washout and seepage, particularly at the foot of a stream bank, and where water levels fluctuate. At the water's edge, it is a method that is durable even before the cuttings have rooted. It is a flexible, simple method requiring little soil disruption, and grows into a natural appearing installation. Willows make ideal live fascine or wattling material.

■ *LIVE CUTTINGS, BRUSH MATTING, BRUSH LAYERING*

In some instances, eroding banks can be protected and a stream meander modifed by the planting of rows of live cuttings from riparian species. Most frequently, cuttings are made from willows and planted during their dormant season in the fall and winter. A technique often referred to as the "Palmiter method" uses the technique of staking dead trees or limbs (brush matting) to eroding banks to slow water velocities on the outside bends of streams and allow for volunteer plant growth to establish itself on the protected site. Live cuttings can be placed in the brush matting. Brush matting can also use live plant material stacked on the banks. Brush layering techniques use live branches of the shrub or tree species which are inserted into the banks perpendicular to the slope so that the rooting occurs back into the slope (rather than parallel, like brush matting) to resist shear failures or slippage.

BRUSH MATTING - PLAN VIEW



BRUSH MATTING - SECTION VIEW

■ *ROCK WALLS, OR DRY STONE WALLS, WOOD PLANK WALLS*

In particularly difficult urban stream settings with steep, vertical banks, little right-of-way space to work within, and high velocity flows, concrete channels have traditionally been recommended for stream bank stability. Alternatives to this may include gabions, or crib walls, but in some cases handplaced rock walls (without mortar), or walls constructed of more aesthetically desirable wood planks have been used instead. Extensive hand labor and skill is required to build a durable dry stone wall, but work that still remains in place from government conservation projects of the 1930s is a testament to their effectiveness. The rock can be interplanted with native vegetation which can serve not only as an aesthetic benefit but as an important structural role in stabilizing the slope as well.

San Luis Obispo Creek in downtown San Luis Obispo uses a variety of aesthetically designed retaining walls.

ADDITIONAL SOURCES OF INFORMATION

1. *Design Manual for Retrofitting Flood-Prone Residential Structures, FEMA 114, September 1986. No cost. Order single copies from: Publications, Federal Emergency Management Agency, P.O. Box 8181, Washington, D.C. 20024*

2. *Stream Obstruction Removal Guidelines, prepared by Stream Restoration Guidelines Committee, the Wildlife Society and American Fisheries, 1983. Copies available from: American Fisheries Society, 5410 Grosvenor Lane, Bethesda, Md. 20814; single copies: $2.00 postpaid; three or more copies: $1.00 each postpaid.*

3. *Stream Enhancement Guide, Ministry of Environment, Canada, March, 1980. Available from: Queens Printer, Parliament Buildings, Victoria, British Columbia, V8V 4RG, 604-387-1901. Total cost including postage: $3.82.*

4. *U.S. Army Corps of Engineers Waterways Experiment Station publications available at no cost from the U.S.A.C.E. Waterways Experiment Station, WESEE-R, Environmental Lab, P.O. Box 631, Vicksburg, MISS. 39180-0631. The report titles are: Environmental Features for Streambank Protection Projects, Report E-84-11, Henderson and Shields; Environmental Features for Streamside Levee Projects, Report E-85-7, Hynson, et al; Incorporation of Environmental Features in Flood Control Channel Projects, Report E-85-3, Nunnally and Shields; Environmental Features for Flood Control Channels, Report E-82-7, Shields.*

5. *Bioengineernig for Land Reclamation and Conservation by Hugo Schiechtl, The University of Alberta Press, 1980. This book is available from the University of Alberta Press, 450 Athabascia Hall, Edmonton, Alberta, Canada T6G 2E8 for $30.00 postage paid. It is now also available in the United States from the University of Nebraska Press, 327 Nebraska Hall, 901 N. 17th Street, Lincoln, Nebraska 68588-0520; Customer service telephone: 402-472-3584. Price: $31.50 postage paid.*

6. *Biotechnical Slope Protection and Erosion Control, by Donald H. Gray and Andrew T. Leiser, Van Nostrand Reinhold Co., 1982. Price: about $26.50 (may vary). Available from technical or specialty bookstores.*

7. *Engineering Considerations in Small Stream Management, edited by William L. Jackson. Reprint from Water Resources Bulletin, Vol. 22, No. 3; Available from the American Water Resources Association, 5410 Grosvenor Lane, Suite 220, Bethesda, Md. 20814. Telephone 301-493-8600; Price $6.00, plus $1.00 for shipping.*

For additional information or assistance, contact:

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(916) 445-9248

Overcoming Federal Water Policies

The Wildcat-San Pablo Creeks Case

By Ann L. Riley

The average time spent planning a U.S. government-assisted flood-control project before construction begins is 26.1 years.[1] These delays are a direct result of federal policies and practices that conflict with some basic community needs. The deficiencies in federal water-project planning policies and their impacts on U.S. communities are manifest in the 33-year history of a flood-control project in North Richmond, California. North Richmond is an impoverished, unincorporated community in Contra Costa County on the eastern shore of San Pablo Bay, a northern extension of San Francisco Bay (see the map in Figure 1 on page 15).

North Richmond grew up during World War II when blacks who came to work in the shipbuilding industry were segregated on the floodplains of Wildcat and San Pablo creeks. The creeks flood and cause poor drainage in the vicinity almost every winter, but more severe flooding puts North Richmond under a foot of water about once every three years.[2] The community's need for flood control has never been disputed. However, the problems inherent to federal policies regarding the design and funding of flood-control projects have repeatedly delayed its implementation. During that time, the community has initiated herculean efforts and innovations to overcome federal obstacles to funding such projects for poor communities; designing projects that recognize local goals for economic recovery and environmental quality; and adjusting to the technical vulnerabilities of traditional flood-control channelization.

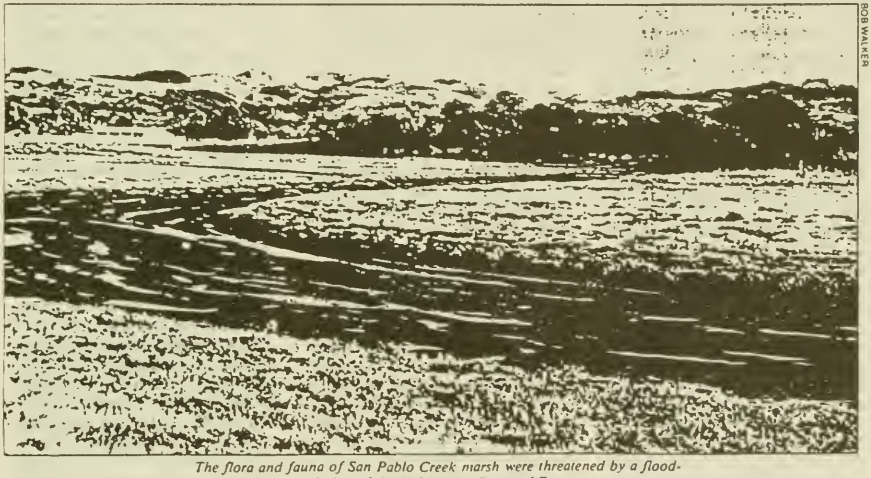
North Richmond is considered by the U.S. Department of Housing and Urban Development (HUD) to be one of the most impoverished communities in the country and, therefore, deserv-

ANN L. RILEY is on leave from her position as chief of the Financial Assistance and Environmental Review Branch of the California Department of Water Resources in Sacramento, California. Her involvement in the flood-control project for Wildcat and San Pablo creeks has been as a citizen volunteer and not as a government representative.

ing of federal assistance. (The 1980 census classified 64.5 percent of the households in North Richmond as female-headed and below the poverty level.) However, suburban development in other parts of Contra Costa County has made the county as a whole one of the wealthiest in California. Economic redevelopment and improvement in the standard of living in North Richmond are unlikely to be achieved without a flood-control project. Although the community has atypical demographics because it is mostly composed of minorities, the residents' values and goals reflect those of other communities: They want opportunities, options, and environmental quality, and they want to have influence in the decisions that affect them. If North Richmond's need for flood control has been met only with the greatest difficulty by the federal water-project planning process, then something is wrong with federal policies and practices.

Early Efforts

In the 1940s and early 1950s, flooding along the Wildcat and San Pablo creeks attracted attention to North Richmond's need for flood control. By 1956, the Contra Costa County Flood Control District had assessed that need and issued a report calling for the implementation of a flood-control project. As a result, in the 1960 Flood Control Act, Congress authorized the U.S. Army Corps of Engineers to conduct a feasibility study for flood control on the two creeks. At that time, the standard practice for reducing flood damages was to construct costly and environmentally damaging reservoirs and stream channels that carry more water at a higher velocity than could be carried by the natural channels. However, national experts in geography, hydrology, engineering, and economics were recommending that the federal government broaden its approach to the re-



ROB WALKER

The flora and fauna of San Pablo Creek marsh were threatened by a flood-control plan of the U.S. Army Corps of Engineers.

Bulldozers dig a basin to trap sediment from Wildcat Creek. Without the trap, sedimentation would hurm the marshland habitat downstream. (Photo: Bob Walker)

duction of flood damages.[3] The experts recommended greater use of nonstructural means of reducing damages, such as floodplain zoning, flood proofing, and relocation of structures, and suggested that a wider range of project sizes be considered. They also recommended that the design of projects be based on more complete data on the watershed and on broader social, environmental, and economic objectives. In 1962, the Harvard Water Program published *Design of Water-Resource Systems*,[4] which presented the recommendations of the best available expertise on how to improve federal water-project planning policy. One of the document's most important recommendations was to base planning on multiple objectives, such as economic growth, regional income distribution, and environmental quality, rather than on the construction of single-purpose engineering works.[5]

In 1968, the Army Corps of Engineers issued a report that presented several different flood-control plans, but no plan was recommended for implementation because the foreseen benefits of the project did not pass the federal cost-benefit test. The only benefits the federal government recognizes in a cost-benefit analysis are tied to the values of the structures in the flood-hazard area that would receive protection. In North Richmond, the substandard housing—some of it just cardboard boxes—was not valuable enough to justify a project.

Multi-Objective Planning in the 1970s

The National Environmental Policy Act of 1969 required the federal government to establish a process for the public review of the impacts of federal projects. (For more details on this law, see Lynton K. Caldwell's article beginning on page 6 of this issue.) In 1974, a new Water Resources Development Act required the consideration of nonstructural alternatives in flood-control planning, and revisions to the federal Water Resources Council's principles and standards made between 1973 and 1979 integrated environmental and social objectives into the cost-benefit analysis of proposed water projects.

Earlier, however, HUD had started the Model Cities Program for urban renewal, and, by 1971, a plan for Richmond was developed that featured Wildcat and San Pablo creeks and the San Pablo Bay shoreline as a recreational and commercial resource to serve as a focus for the redevelopment of the area (see Figure 2 on page 16).[6] The Richmond Model Cities Plan called for HUD to take flood control off the shelf, and HUD proceeded to contract for a privately prepared economic analysis of a flood-control project.[7] Eleven years after the first federal studies began, political momentum succeeded in overcoming the difficulty of the cost-benefit analysis; HUD's consultants considered future project benefits and potential recreational benefits and made the numbers work.

With new, favorable cost-benefit formulas from HUD's consultants, the corps of engineers conducted a planning process that reflected the pressures of the 1970s to increase public participation in project planning and produced a new, community-supported flood-control plan that was authorized by Congress in 1976. A case study written on this phase of the Wildcat-San Pablo flood-control project, *Can Organizations Change?*, praised the corps' first effort to accommodate the needs of a poverty-stricken area.[8] The corps based its planning on the multiple objectives of the Richmond Model Cities Plan, which focused on social well-being, environmental quality, and economic redevelopment. The project benefits included protection of existing and future development, the expected increase in market value of the project area, and recreational benefits. North Richmond residents involved in the project planning during this era were complimentary of the corps' planning process and sensitivity to community needs.[9]

The corps of engineers considered including an Environmental Quality Plan among its project alternatives. Although they did not choose the Environmental Quality Plan as the Recommended Plan, neither did they choose the National Economic Development (NED) Plan, which was a single-objective plan to reduce flood damages. The NED Plan maximized the difference between costs and benefits for a project designed to provide protection against the 100-year flood (that is, a flood of such magnitude that it is likely to occur only once in 100 years). The Recom-

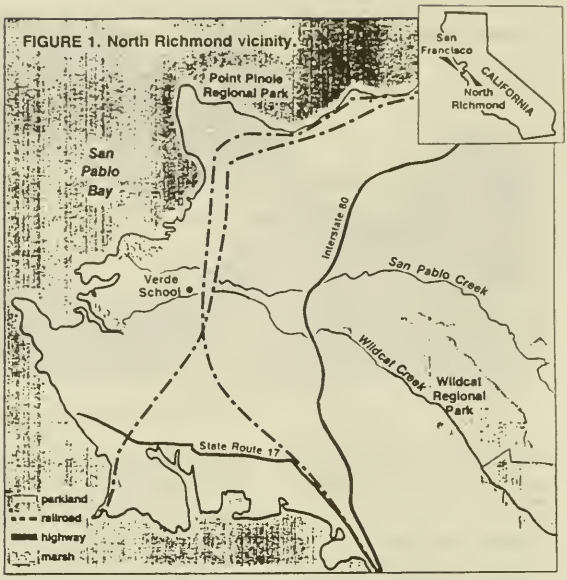
mended Plan adopted by the corps in 1979 contained traditional flood-control engineering for the 100-year flood in the form of concrete box culverts and trapezoidal and rectangular concrete channels, but the plan also provided for a dirt, trapezoidal channel on lower Wildcat Creek that would have some landscaping. Also authorized as part of the flood-control project were several recreational elements, including a regional trail, a nature study area near Verde Elementary School (which stands beside Wildcat Creek), and freshwater impoundments on ponds.[10]

Federal policy requires that all land acquisitions, easements, right-of-ways, and up to 50 percent of the recreation components be paid for by the community. When North Richmond set about raising its share of the expense for this project, some of the area's major businesses—including Chevron Oil; Southern Pacific Railroad; Atchison, Topeka and Santa Fe Railroad (which had a train derail over San Pablo Creek in a January 1982 storm); and the Richmond Sanitary Company—did not contribute. Their parsimony contributed to the community's failure to raise the required local share of the total cost. Thus, the federal cost-sharing requirements undermined the corps' efforts to design a plan that would use the creeks as part of a community economic revival plan, as outlined in the Richmond Cities Plan.

Under the Reagan Administration

In the 1980s, federal policies reverted to favoring the construction of projects based on a single objective of economic efficiency. The Reagan administration's standards and guidelines required the selection of a NED Plan that was described by the corps' staff as a least-cost plan to reduce flood damages; neither environmental quality nor nonstructural plans were supposed to be considered in the development of project alternatives. The administration also required local residents to pay a greater portion of the project costs in addition to the cost of land acquisition, easements, and right-of-ways.

FIGURE 1. North Richmond vicinity.

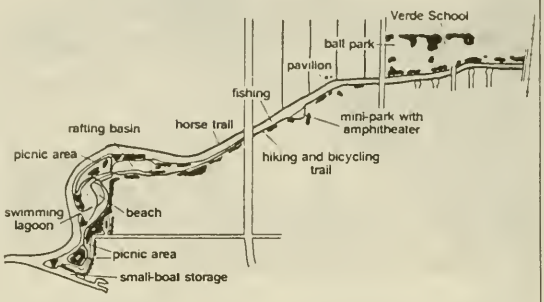


In 1982, Contra Costa County officials proposed a bare-bones, structural flood-control project without any environmental amenities to be constructed in cooperation with the Army Corps of Engineers. The county board of supervisors, as the local sponsor, presented the "Selected Plan" to the North Richmond community on a take-it-or-leave-it basis and argued that it was the only affordable alternative (see Figure 3(a) on page 19). Although the corps' staff demonstrated more openness by being willing to discuss alternative plans with the public, the corps decided to take a back-seat role and defer to the county on the issues of project design and citizen participation. The corps of engineers also discouraged multi-objective planning in the belief that North Richmond could not afford anything but a basic channelization project.

Some North Richmond residents were resigned to accepting any flood-control project offered; others felt so strongly about the Richmond Model Cities Plan that they wanted to retain influence in the design process and explore other project options. The take-it-or-leave-it option ran counter to the long history of active community involvement in the Richmond Model Cities Plan and alienated some key community leaders. In the spring of 1983, community leaders organized a meeting in North Richmond to determine community reaction to the county/corps Selected Plan for flood control. The issues raised at that meeting defined the next five years of work for the community volunteers who changed both the planning process, the plan design, and funding strategy.

Members of several North Richmond community groups, including the Richmond Neighborhoods Coordinating Council, the Urban Creeks Council, Save San Francisco Bay Asso-

FIGURE 2. Richmond Model Cities Plan for Wildcat Creek.



SOURCE Joint Agency Committee for the Development of North Richmond-San Pablo Bay Area, "North Richmond-San Pablo Bay Area Study—Summary Report" (Contra Costa County, September 1971)

ciation, and the Contra Costa County Shoreline Parks Committee, formed a coalition to request that a plan be developed that recognized the value of Wildcat and San Pablo creeks as important local and regional resources and that recognized the regulatory, funding, and technical design problems inherent in the county's proposed plan.

The coalition raised several important environmental concerns:

- Wildcat Creek was classified by the California Department of Fish and Game as one of the last remaining streams in the San Francisco Bay area with almost a continuous riparian environment along its length. However, the county/corps Selected Plan would make it a concrete and earth-lined channel complete with covered box culverts.
- Environmental experts, including two nationally prominent hydrologists, Luna Leopold and Phil Williams, feared that the project would, through sedimentation, do serious harm to the wetlands and marshes of the lower floodplain. Hydrologists reported to the coalition that the corp's estimates of sediment moving through the two creeks were substantially too low; that the concrete-lined channels would not provide the flood protection assumed by the project's designers because the sediment would increase the hydraulic resistance and decrease the capacity of the channels; that the plan would create costly and frequent maintenance needs; and that the proposed sediment detention basin on Wildcat Creek would not protect the marshland of the lower floodplain from sedimentation.
- There were no sponsors or plans to provide recreational open space and educational benefits for members of the community and other regional park users.

Other issues associated with the Selected Plan were the safety hazards of locating a box culvert for high-velocity storm flows next to Verde Elementary School; obstacles to getting regulatory approval from state and federal agencies; and the difficulty of raising the local share of the plan's cost, given the Reagan administration's demand for increasing local cost-sharing requirements and the plan's unattractiveness to other potential federal and state funding contributors.

Despite the efforts of the Grizzly Peak Flyfishers, the East Bay Regional Park District, and the California Department of Fish and Game to increase public and political awareness of the environmental issues by planting native trout in Wildcat Creek in September 1983, the county remained opposed to broadening the project's objectives or responding to technical reviews. Therefore, the Urban Creeks Council and the Richmond Neighborhoods Coordinating Council decided to design their own flood-control plan and successfully applied to the charitable Vanguard Foundation in San Francisco and the San Francisco Foundation for funding. The coalition of neighborhood and environmental organizations used a 1960s organizing and community participation strategy known as advocacy planning, in which it solicited its own paid and unpaid experts to develop a new "Modified Plan" to compete with the county/corps Selected Plan.

The Modified Plan

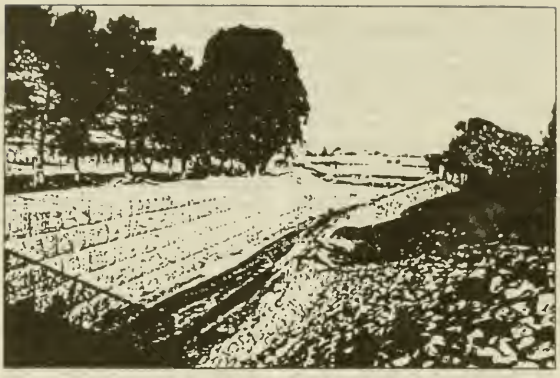
The East Bay Regional Park District was an early supporter for developing a plan that would allow for the extension of popular regional trails from Wildcat Canyon and Point Pinole Shoreline parks along Wildcat and San Pablo creeks and their marshes. Financial assistance from the park district and the Save San Francisco Bay Association brought the coalition's final, alternative planning budget to $50,000, enough to pay for the design of a flood-control project on at least one of the creeks, although the design's principles and many of the details would, of course, be applicable to both creeks. Eventually, a Modified Plan for Wildcat Creek was developed with a very different design philosophy from that of the Selected Plan.[11] This new plan would modify the existing creek channels to simulate the natural hydraulic shape and processes of undisturbed streams, deposit the sediment in the upstream floodplain, and restore valuable riparian vegetation. The proposed concrete and trapezoidal earth channels of the Selected Plan were replaced in the Modified Plan with more natural, low-flow, meandering channels, floodplains, setback levees, planted gabion walls, and riparian trees (see Figure 3(b) on page 19). The Modified Plan also included

regional trails and park facilities. The coalition's planners developed their own project cost estimates and funding plan and presented their Modified Plan at all the same meetings attended by the public and government agencies at which the Selected Plan was presented.

The advocacy planning strategy introduced alternatives and, therefore, controversy into the Army Corps of Engineers' planning sessions. The strategy eventually forced a change in the planning process from one in which citizens were to be briefed on the final Selected Plan chosen by the county board of supervisors and the corps of engineers to one in which citizens became active participants in determining the design of the final plan. Also, citizen participation evolved from a Citizen Advisory Committee with handpicked members who could be depended on to vote for the Selected Plan to an open process in which anyone affected by the plan could help to determine the design.

With the county, corps of engineers, and community at loggerheads, the staff of state Assemblyman Bob Campbell helped to negotiate a planning process that used combined government-citizen design and funding teams to arrive at some consensus. Campbell's staff also helped North Richmond residents meet their share of the project costs by identifying state funding sources made accessible by the broader objectives of the final "Consensus Plan." Thus, the coalition used its Modified Plan to force the consideration of a multi-objective plan back into the planning process.

On 19 February 1985, the Contra Costa County Board of Supervisors approved the Selected Plan for construction but left the door open for multi-objective designs if funds became available. In June 1985, the U.S. Fish and Wildlife Service had reviewed the Selected Plan and issued their legally required Biological Opinion, which prevented the corps from implementing the Selected Plan because of its probable impacts on the marshes and their endangered species. The Fish and Wildlife Service then adopted the coalition's Modified Plan as "the prudent and reasonable alternative."[12] In addition, the San Francisco Bay Conservation and Development Commission did not find the Selected Plan consistent with the requirements of the McAteer-Petris Act for the protection of San Francisco Bay wetlands.[13] But the commission found it could permit the Modified Plan. A combination of pressure from federal and state environmental and regulating agencies, the endurance and persistence of community leaders, and press coverage resulted in the adoption by the Contra Costa County Board of Supervisors of a multi-objective Consensus Plan. Construction on the Consensus Plan began in 1987 and still continues.



Under the Consensus Plan, this part of Wildcat Creek is lined with gabions (on the left) and a rock bank. The trees have been saved and more native species will be planted. (Photo: Bob Walker)

Design by Consensus

When the corps of engineers found, in June 1985, that it could not implement the Selected Plan, the county board of supervisors established a project design team to construct a plan in which the concerns of the government agencies with regulatory powers over the project would be properly coordinated and integrated with the concerns of the public. The design team was not formed because an enlightened county or corps aimed to pioneer consensus planning; it was formed out of a crisis situation caused by the lack of support for the project on the part of state and federal regulatory agencies and by the negative publicity the proposed Selected Plan had generated. The team was to produce a fundable project that the regulatory agencies would accept and that the coalition could endorse. Team members included representatives from the U.S. Fish and Wildlife Service, the California State Lands Commission, the California Department of Fish and Game, the San Francisco Bay Conservation and Development Commission, the California Coastal Conservancy, the East Bay Regional Park District, state Assemblyman Bob Campbell's office, state Senator Dan Boatwright's office, Congressman George Miller's office, the coalition and its own professional experts, local land and nursery owners, and, of course, the Contra Costa County Flood Control District and the U.S. Army Corps of Engineers. Meetings occurred no less than once a month, and, in 1985, the meetings were sometimes scheduled as often as once a week. Throughout the plan-

ning effort of the next three years, attendance at the design team's meetings remained high, averaging approximately 20 persons per meeting.

Competition among the different interests on the team resulted in many grueling meetings. An important turning point in the consensus-making process was the appointment of Jim Cutler as chairman of the design team. Cutler, a neutral person from the county planning department with good group management skills, replaced the county engineer, who had a personal bias for a single-objective design. The other key component to the success of the consensus design process was that the county paid the citizen's own hydraulic expert, Phil Williams, who had helped design the Modified Plan, to represent the coalition at design team meetings. The ultimate measure of success of the consensus planning process was that, after an unsuccessful, 29-year planning history, the flood-control project was designed and funded and construction had begun within two years. Two notable problems arose: the first, when relevant and interested parties were not included on the design team; and the second, when continuity in decisionmaking and plan formulation broke down because of continual changes in corps and county staffing. The first problem occurred because the Richmond Unified School District Board was not adequately involved in the design of the project, which ran through their property near Verde Elementary School. The school board held up the project by withholding the right-of-way until its concerns were met. The school board also used the advocacy planning strategy by hiring a consultant to design an alternative plan. By withholding the right-of-way, the school board was able to force a more environmentally sensitive treatment of the part of the creek running through school property.

The other difficult problem that plagued the design team was the lack of continuity in both the federal and local staff assigned to the project. Between 1984 and 1988 the corps of engineers assigned three different engineers to the job of project manager. The resultant discontinuity in decisionmaking brought on an environmental and publicity disaster featured in a front-page article in the *San Francisco Examiner-Chronicle* on 14 June 1987.[14] Construction plans that did not reflect the decisions of the design team were given to the contractors who accordingly bulldozed a half mile of riparian vegetation that was supposed to be preserved. Shortly thereafter, a levee constructed in the wrong location prevented the implementation of a marsh restoration project and jeopardized state funds for the marsh enhancement plan. The situation was exacerbated when a key member of the county staff gave the construction contractors approval to proceed with plans that did not correspond to the team's decisions. To prevent further problems, the design team adopted a new system of taking team-approved minutes in addition to publishing and mailing cross-sections and maps of the approved stream channel and project designs to all design team members.

Design Features

The design team chose features for the Consensus Plan from the designs of the Modified and Selected plans already proposed. Although the design team's final Consensus Plan is a compromise between the two plans, the basic components of the Modified Plan were retained because of the importance of managing the large amount of sediment, particularly in the Wildcat watershed, to avoid degrading the endangered species' habitat in the marshes (see Figure 3(c) on page 19).

One of the most important features of the coalition's Modified Plan was that the stream corridors, or floodways, would remain within the same narrow right-of-way boundaries that the 1982 county's Selected Plan used and would provide the same level of protection against a 100-year flood. The right-of-ways of the corps' original 1976 plan had been up to 250 feet wide to accommodate certain environmental features. The Modified Plan, however, included riparian vegetation next to the channels and a terrace for sediment accumulation but did not increase the project's width beyond 180 feet. Yet the designs of the Modified Plan that were incorporated into the Consensus Plan provided the same level of flood protection as the 1976 design because a different design philosophy was used in which the channels were modeled not on the dimensions or performance of a hydraulic flume but on natural channel geometry. Thus, the design of the Consensus Plan disproves the common presumption that only trapezoidal or rectangular channel geometry can be used in a narrow project right-of-way.

Ultimately, sections of the right-of-ways in the Consensus Plan were increased because state and local entities purchased or donated lands to enhance the project. For example, the State Lands Commission purchased some downstream land on Wildcat Creek between the riparian area and the marsh to provide a transition zone that would enhance the environment and catch sediment. Upstream on Wildcat Creek, the school district donated additional land for the right-of-way to provide more and better design options. The county had never presented these options to the school board. Because of design problems with the sediment basin, corps and county officials concluded that the basin should be relocated to an upstream site. This change ultimately raised the land acquisition costs for the project.

The Consensus Plan substituted the standard trapezoidal dirt and riprap channels, rectangular concrete channels, and box culverts of the Selected Plan with natural floodplain features of the Modified Plan wherever possible. The Consensus Plan has 10- to 15-foot-wide, meandering, low-flow channels designed to carry the creek's 1.5 recurrence interval flows (mean flows) and floodplains where the flows could spread, lose velocity, and deposit sediment. Riparian vegetation is included on both sides of the low-flow channels and riparian trees will shade the channels and prevent the growth of bulrushes and willows, which obstruct

flow. Although previous corps project designs had designated a low-flow channel in lower Wildcat Creek, they did not include natural channel geometry or vegetation or grading plans that would help define stable, low-flow channels. Typically, the corps' low-flow channels superimposed on open, wide-bottom, trapezoidal channels are unstable, braided, and choked with bulrushes.

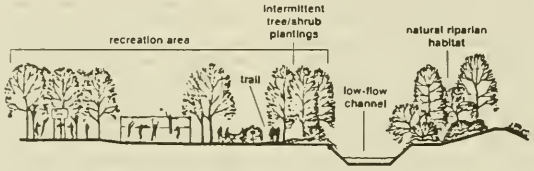
The Consensus Plan is designed so that sediment deposition will occur where it is least harmful—on the floodplain and in the bay. By trapping as much sediment in the upstream floodplains as possible, filling of the downstream marsh with sediment should be prevented. The Consensus Plan assures that the low-flow channels will scour and transport as much sediment as possible to San Pablo Bay. To further protect the marsh from sedimentation, the plan also calls for widening the slough channels through the marsh so that suspended sediments can be conveyed by the channels without overtopping into the marsh and for excavating sediment to increase the brackish marsh area and restore the marsh's tidal action.

Technical Issues

The most contentious technical issues faced by the design team included making reasonable estimates of the sediment loads carried by the creeks, assessing the ability of the corps' proposed sediment basin to collect sediment, judging the safety of concrete box culverts, and assigning roughness values to proposed revegetation areas. The coalition's experts argued that the natural creek channels were aggrading with high sediment loads and predicted that the even wider, trapezoidal channels proposed by the corps would further increase sedimentation. The narrow, low-flow channels of the Modified Plan, therefore, were better designed to transport sediment in suspension at higher velocities. Phil Williams and Luna Leopold also questioned the ability of the corps' proposed sediment basin to perform as a sediment trap. Later the corps' own specialists at the Waterways Experiment Station in Vicksburg, Mississippi, independently raised the same concern. Therefore, the design team decided to locate the basin further upstream, and they adopted the floodplains, wetland transition zone, and higher velocity, low-flow channels of the Modified Plan to keep the sedi-

FIGURE 3. Cross-sections of creek channels designed for the Selected, Modified, and Consensus plans for the flood-control project on Wildcat and San Pablo Creeks in North Richmond, California.

(a) 1982 Selected Plan proposed by Contra Costa County and U.S. Army Corps of Engineers.



(b) 1984 Modified Plan proposed by a coalition of North Richmond community organizations.

(c) 1986 Consensus Plan developed by a design team of community, county, and federal representatives.

SOURCES: U.S. Army Corps of Engineers, *General Design Memorandum and Basis of Design for Reach 1, Wildcat and San Pablo Creeks* (Sacramento, Calif.: U.S. ACE, Sacramento District, October 1985). Poster of the Modified Plan published by a coalition of North Richmond community organizations including the East Bay Regional Park District, and U.S. Army Corps of Engineers, *Supplement No. 3 to Design Memorandum 1, Wildcat and San Pablo Creeks Environmental Mitigation Project* (Sacramento, Calif.: U.S. ACE, Sacramento District, August 1988).

ment load from ending up in the marsh or significantly decreasing the channels' capacity.

Another difficult design issue to resolve was how to make up for the loss of 24 acres of riparian vegetation. The county's 1982 proposal called for planting trees on some acreage north of Wildcat Creek. In the Consensus Plan, trees planted along the two creeks' low-flow channels would help guide channel formation and shade the bank to prevent it from clogging with rushes, reeds, and sediment. However, county engineers did not want vegetation near the channels because they felt this would make channel maintenance difficult for them. Thus, choosing roughness values that would determine how much vegetation could be allowed without reducing the needed channel capacity became a critical aspect in the design of the Consensus Plan.

Roughness values are calculated by using the Manning Equation to describe the flow resistance caused by the texture of the surface over which the water must flow. But the assignment of roughness values is a very subjective process. The corps originally considered using the values 0.100 for the riparian areas south of the low-flow channels and 0.045 for the north floodplains. (Lower roughness values mean more vegetation is allowable.) The design team finally decided that a composite value for the low-flow channels and south bank riparian forests would be 0.050 (conditional upon maintaining clear low-flow channels), and a roughness value of 0.035 was assigned to the north bank floodplains for low shrubs and grasses.

Once roughness values had been chosen, the design team had to agree upon a maintenance plan for keeping the low-flow channels cleared of vegetation until a riparian canopy could grow to shade out the unwanted, clogging reed growth expected in exposed, low-flow channels. The agreement negotiated between the county supervisor and the corps' project manager provides for inexpensive hand labor by conservation crews to clear the unwanted vegetation. Potential maintenance crews include the State of California Conservation Corps and a local East Bay Conservation Corps as well as labor from the state's new workforce program. It was also agreed that the standard, annual maintenance routines for removing sediment or clearing vegetation would be substituted with a maintenance schedule based on actual need. Thus, maintenance activities, costs, and negative environmental impacts resulting from channel maintenance should be reduced.

Maintenance

The consensus maintenance plan is one of the most important innovations of this project. Federal government policy mandates that local project sponsors must accept long-term responsibility for the maintenance of any project. But corps officials readily admit that such maintenance costs have been grossly underestimated over the years. These costs may have been underestimated simply because they fall on the costs side of the cost-benefit analyses, but another likely reason for the misjudgment is that the corps' channelization projects have not performed as the engineers expected. Many flood-control channels quickly re-establish their original grades when sediment fills in the project's designed grade, thus greatly reducing the channel capacities. Lowered capacity results in more frequent and more expensive maintenance bills.

Because the design team also had to face the reality of the project's limited maintenance budget, a critical need of the Consensus Plan was to provide a channel design that would reflect the equilibrium in a natural system and that would assume a certain amount of sediment deposition in the calculation of channel capacities. The Wildcat-San Pablo Creek Maintenance Master Plan was as much a negotiated part of the design team's Consensus Plan as the project features. It requires an annual field inspection of the project by interested agencies and community organizations. The Hydraulic Engineering Center-2 water surface profile model will be used to estimate channel capacity at cross sections selected for monitoring. When vegetative growth and sediment deposition reduce the two creeks' freeboards by 50 percent, participants in the maintenance planning will prescribe how to thin the vegetation and/or remove sediment to re-establish the channels' capacity while minimizing maintenance activity impacts on the environment.

To design a revegetation plan that would reflect the needs of the U.S. Fish and Wildlife Service, the California State Lands Commission, and other members of the design team, the county asked the corps of engineers to contract with the Soil Conservation Service, which has experience with the revegetation and restoration of streams. In September 1988, the Soil Conservation Service and the corps issued a recreation and revegetation supplement to the corps' design memorandum about the Consensus Plan.[15] Their revegetation design objective is not to landscape a flood-control project but to restore a riparian environment along the low-flow channels. Revegetation will be done with cuttings from nearby plants, seeds from California species native to the locale, and some container stock. Because of the competence demonstrated by the landscape architects in the design process, the design team asked the corps to retain the Soil Conservation Service staff for the actual plant installation.

The most significant test of this innovative project remains, however: to complete construction according to the design team's plans and specifications. The Army Corps of Engineers estimates that construction should be completed in 1990.

The Funding Strategy

The coalition's Modified Plan and the county's Selected Plan had very similar cost estimates. The Consensus Plan's costs were higher because the sediment basin was redesigned and relocated. The transition of this project from a single-objective flood-control

(continued on page 29)

Federal Water Policies
(continued from page 20)

project to a multi-objective project to restore marshes, provide recreational and educational opportunities, and enhance the environment, as well as to control flood damages, made it possible to attract funding from state agencies that could not otherwise have contributed. For example:

- The East Bay Regional Park District committed $793,000, which was matched by another $793,000 by the corps, for a regional trail system. The park district later committed $19,000 to help enhance creekside educational opportunities near Verde Elementary School and may commit more as the recreational and educational project element is finalized.
- The California State Lands Commission purchased $240,000 worth of land for the Wildcat Creek wetland transition zone.
- In February 1987, the California Coastal Conservancy Board authorized the expenditure of $578,000 for marsh restoration and riparian enhancement areas. After the original restoration plan was damaged by the construction mistakes in the Wildcat and San Pablo creek marshes and the county failed to identify willing sellers of riparian land parcels, the Coastal Conservancy headed a task force to come up with a new marsh restoration plan. A total of $46,000 was used from the first Coastal Conservancy authorization, $5,000 was provided to the design team effort, and a second authorization of $314,870 was committed by the conservancy's board to implement a revised restoration plan.
- In June 1989, the California Department of Water Resources awarded a $100,000 grant because the project involved design innovations, a commitment to citizen participation, and educational opportunities.

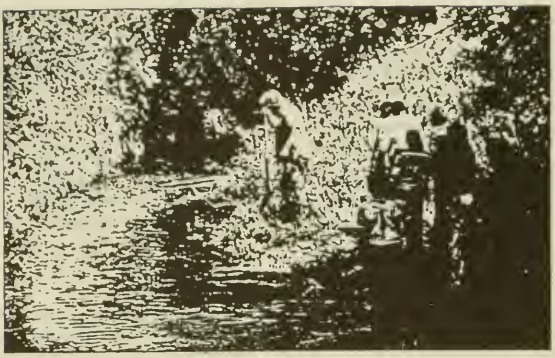
As of fall 1989, the Consensus Plan has attracted funds totaling more than $2 million. A project finance committee composed of local, state, and federal representatives and agency staffs has not yet completed its fund-raising activities, and there are reasonable chances of more state, park district, or foundation monies becoming available.

The federal project cost-sharing policy in the 1980s has been to increase nonfederal contributions for projects and to use a community's willingness and ability to pay as an important criterion for selecting projects for construction. Such policies discriminate against a poor community trying to meet its share of the large costs associated with a water project. The most effective strategy for helping North Richmond to raise its share of the cost was to diversify the project and attract state dollars. Unfortunately, this strategy resulted in a difficult Catch-22. By attracting more dollars to the project for these diverse benefits, which are actually classified as project costs by federal standards, the costs side of the cost-benefit ratio was raised and might have upset the required ratio between costs and benefits for project approval. The corps' project manager cleverly adapted to this impossible situation by classifying the marsh restoration, some of the riparian areas, the wetland transition zone, the Verde Elementary School revegetation and educational area, and the park district staging area as enhancements occurring outside the project's boundaries and, therefore, not part of the official project costs. Because the corps classified these project components as enhancements they became the financial responsibility of the community. Ultimately, the transition zone was made a project requirement by the Endangered Species Act as a control point for sediment catchment and had to be included in the project costs equation.

Federal policies for project evaluation and funding are strongly biased against a project like North Richmond's flood control. Federal definitions of water-project costs and benefits do not reflect the broad, long-term needs and values of the communities where such projects are often located. Likewise, the federal cost-sharing policies do not recognize unique, local economic and social conditions. The policies discriminate against financially disadvantaged communities attempting to benefit from federal projects even though these communities are frequently located in some of the most hazardous areas. Because the cost-sharing policies make it a local responsibility to purchase lands, easements, and right-of-ways, there is a built-in bias against the purchase of riparian preservation zones, trails, and other environmental features.

Policies and Practices

At the same time as corps officials, Congressman George Miller, and local representatives were brandishing their shovels at the project's ground-breaking ceremony in October 1986, a new policy for the authorization and design of water projects was being set out by the 1986 Water Resources Development Act. After a follow-up water omnibus bill was passed in 1988, the corps issued the *Digest of Water Resources Policies and Authorities*, which is used as a policy guide for the development of water projects by corps personnel.[16] There are no provisions in these policies to design environmental quality plans or nonstructural alternatives as part of the flood-control planning process. The main component of the new policy is to increase substantially the nonfederal share of project costs. Accommodating the financial need of a community is left to the discretion of the assistant secretary of the army in charge of civil works. The corps is to build NED plans that maximize net benefits, and any project enhancements beyond this are to be paid for solely by the community. This policy translates into the assumption that the corps will construct channelization projects for flood control, but that environmental features of some kind can be tacked on only if the community pays for them. The new policy also maintains the barrier against any model in which a different design philosophy is used to build more natural, stable channels integrated with other environmental features.



A teacher takes his students to explore Wildcat Creek. The creek, which runs along the south side of Verde Elementary School, presents many educational opportunities. (Photo: Alan La Pointe)

There are some possibilities for improving the policies and practices outlined in the corps' digest. For example, the policies have left open the possibility that communities may select smaller projects than what is needed for protection from the 100-year flood. This kind of choice is based on the rationale that, if the locals are going to pay for more of the project, they should be able to have more say in the project design.

Even though North Richmond is a federally recognized poverty area, the assistant secretary of the army in charge of civil works did not respond to the request of Congressman Miller to provide a larger federal share of the project cost. This refusal may be credited to North Richmond's location in an affluent county. Revenues for flood-control projects are raised by assessing the districts where the projects are located. But in coastal California, it is not unusual for poorer communities to be located in downstream floodplains while the wealthy live on the upstream hills where no flood hazards exist. Typically, segments of the population who live adjacent to projects but do not benefit from them do not elect to fund the projects. Federal cost-sharing policies and the assistant secretary of the army need to be more realistic about local socioeconomic conditions. If North Richmond, with a median annual income of $7,412 and a 64.5 percent poverty rate, cannot qualify for flexible cost-sharing arrangements, then what community will?

In the interest of holding down federal water-project expenditures, the federal government clings to the use of an outmoded cost-benefit analysis and an inequitable cost-sharing system that are biased against low-income areas and nonstructural solutions. Even the environmental lobby supports the federal cost-sharing policies in the belief that such policies will reduce the number of projects and thus reduce damage to the environment. The endorsement of such policies strikes a blow to rational planning in which plans are designed to fulfill desirable objectives. It is inconsistent and contradictory for environmental advocates to challenge the use of the cost-benefit analysis as an oversimplified means to justify the selection of projects for federal assistance but to accept the use of cost-sharing arrangements as a critical aspect of the project justification process. Moreover, the cost-benefit analysis and the cost-sharing system should not be the only determinants for qualifying projects for federal support; local priorities, needs, and objectives must be incorporated into the plans, as should broader national goals for social and environmental needs.

Federal water-project planning has been and will continue to be driven on the basis of the scarce federal dollar. The great irony of the impasse is that a reformed system using objectives-based planning and technical designs based on concepts of hydrology instead of channel hydraulics would reduce both the federal share of costs and the total project construction bill. Objectives-based planning will save federal dollars because:

- the projects that will legitimately meet the test of fulfilling multiple objectives are few;
- different technologies, such as stream restoration strategies, can lower project costs;
- different construction and maintenance techniques may contribute to local economies just as the Works Progress Administration did in the 1930s and 1940s; and
- protection measures against the smaller, more frequent floods instead of the larger, 100-year floods will reduce the cost of many projects.

Citizen participation is considered by many water-project planners to be a costly nuisance, but many project engineers and members of Congress can tell of dramatic planning-cost overruns that occurred after years of studies and planning when citizens blocked projects after they were authorized or before construction started. Most federal water-project planners do not realize that a high level of citizen participation can attract financial contributors to projects. Citizen participation can also stimulate political support and interest in a project, and such support is crucial to attracting project money from a diversity of local, county, regional, and state programs. In addition, just as the multiple objectives of the Consensus Plan brought in nonfederal funds, projects that meet more than one objective, such as park development, fish-

eries enhancement, recreation, and wildlife benefits, save federal dollars by attracting other funding sources, such as state and local resource, fish-and-game, and park agencies.

Some nonstructural and environmentally sensitive design measures do incur higher land acquisition costs. But these costs need to be balanced against the long-term costs of maintaining structural engineering works, constant sediment removal, vegetation removal, and the unintended impacts common to the traditional project design. Fiscally responsible policymaking and project design must weigh the true, long-term costs of traditionally designed projects against the costs of land acquisition.

The U.S. Army Corps of Engineers is proud of the flood-control project on Wildcat and San Pablo creeks. An engineer for the Sacramento district wrote an article for *Hydraulic Engineering* describing the interesting hydraulics of the Consensus Plan.[17] The corps' Waterways Experiment Station has encouraged the use of this project as a model for future water-project designs in training courses. However, well-intentioned corps personnel who want to respond to local needs in formulating plans find themselves caught between conflicting local needs and federal policies. Over the last 10 years, the project in North Richmond is just 1 of 12 California water projects that the public has tried to redesign to meet community needs.

The current federal system of water-project evaluation is so narrow that only those communities with the most influential representatives will be able to circumvent the planning system through a long and costly process and get a project that meets community needs. Such a system does not stop pork-barrel projects; it only makes them more time-consuming and expensive. Only a system that recognizes the need for multi-objective planning and ensures that these objectives are met by the project under consideration for federal assistance will produce water development projects with genuine local and national benefits.

NOTES

1. Government Accounting Office, "Update on Army Corps of Engineers' Planning and Designing Time for Water Resources Projects," GAO/RCED-84-16 (Washington, D.C.: U.S. Government Accounting Office, January 1984).

2. U.S. Army Corps of Engineers, *General Design Memorandum and Basis of Design for Reach 1, Wildcat and San Pablo Creeks* (Sacramento, Calif.: U.S. ACE, Sacramento District, October 1985).

3. These early experts included Gilbert White, Jim Goodard, Otto Eckstein, John Krutilla, William Hoyt, Walter Langbein, Luna Leopold, Thomas Maddock, Arthur Maass, Maynard Hufschmidt, and many others.

4. Arthur Maass et al., *Design of Water-Resource Systems, New Techniques for Relating Economic Objectives, Engineering Analysis, and Government Planning* (Cambridge, Mass.: Harvard University Press, 1962).

5. Martin Reuss, "Interview with Professor Arthur Maass," 20 May 1983, Harvard University.

6. Joint Agency Committee for the Development of North Richmond-San Pablo Bay Area, *North Richmond-San Pablo Bay Area Study Summary Report* (Contra Costa County, Calif., September 1971).

7. INTASA, "Relationship of Proposed Flood Control Project and Model Cities Objectives for Community Development in North Richmond" (Menlo Park, Calif., June 1971).

8. Daniel A. Mazmanian and Jeanne Nienaber, *Can Organizations Change?* (Washington, D.C.: The Brookings Institution, 1979).

9. Barbara Vincent, Jay Vincent, Lucretia Edwards, Laura Hunter, Jean Siri, and members of U.S. Army Corps of Engineers planning committees, conversations with author, 1983.

10. U.S. Army Corps of Engineers, *Wildcat-San Pablo Creeks, Contra Costa County, California, Feasibility Report for Water Resources Development* (San Francisco, Calif.: U.S. ACE, August 1973; U.S. Army Corps of Engineers, *Wildcat-San Pablo Creeks Contra Costa County, California, General Design Memorandum Phase I for Flood Control and Allied Purposes, Draft* (San Francisco, Calif.-U.S. ACE, December 1977); and U.S. Army Corps of Engineers, *Master Plan Wildcat and San Pablo Creeks* (San Francisco, Calif.: U.S. ACE, Plan prepared by Arbegast, Newton & Griffith Landscape Architects, Contra Costa County, Calif., 1979, Draft).

11. Philip Williams and William Vandivere, *A Flood Control Design Plan for Wildcat and San Pablo Creeks* (Sponsored by the San Francisco Foundation, the Vanguard Foundation, the East Bay Regional Parks District, and Save San Francisco Bay Association, 27 February 1985).

12. U.S. Fish and Wildlife Service, "Endangered Species Formal Consultation on the Proposed San Pablo and Wildcat Creek Flood Control Project, Contra Costa County, California," AFA-SE 1-1-85-F-19 (Portland, Oreg.: U.S. Fish and Wildlife Service, 12 June 1985).

13. McAteer-Petris Act of 1965 was the State of California's enabling legislation that authorized the formation of the San Francisco Bay Conservation and Development Commission. The act requires the regulation of fill placed in the bay and requires public access to the bay.

14. Eric Brazil, "Trouble Anew for 'Murdered' Creek," *San Francisco Examiner-Chronicle*, 14 June 1987, A-1.

15. U.S. Army Corps of Engineers, note 2 above.

16. U.S. Army Corps of Engineers, *Digest of Water Resources Policies and Authorities*, EP1165-2-1 (Washington, D.C.: U.S. ACE, 15 February 1989).

17. Edward F. Sing, "Stable and Environmental Channel Design," *Hydraulic Engineering*, August 1988.

Overview

(continued from page 5)

rest with the adoption of an environmental amendment to the Constitution or through international environmental treaties.

But there may be another option. If the substantive goal of EIA is to influence the decisionmaking process, the focus of attention should be expanded beyond the legal performance of agencies to include the manner in which decisions are made within the bureaucracy itself. By this approach, decisionmaking procedures would become more transparent and open to public participation and scrutiny. Through mandatory information disclosure, public dialogue, and publicized audits, government administrators would be held accountable for the decisions and actions of their agencies in light of the environmental values and aspirations expressed by the general public. Thus, the quality of the decisions, which is the bottom line in EIA accounting, would be open for review and judgment in the political arena in the same way that the legal performance of agencies is judged in the courts.

This approach may sound somewhat politically naive, given the acknowledged reluctance of bureaucracies to share control. Nevertheless, it is the way in which EIA procedures have evolved at the federal level in Canada. After about 17 years of development under a nonlegislated mandate, an environmental assessment act is being prepared that will require public involvement in the decisions of government and provide mechanisms to hold agencies accountable for the environmental consequences of their decisions.

Gordon E. Beanlands
Dalhousie University
Halifax, Nova Scotia

The author replies:

I HAVE NO SIGNIFICANT DISAGREEMENT with the preceding commentaries, as they generally add to or qualify the points made in my article (see page 6). But as these commentators have made the effort to respond to my ideas, so would I like to respond to theirs.

Timothy Atkeson suggests that trends in international environmental cooperation may advance governmental commitment to environmental values without the uncertain aid of a constitutional amendment. I agree with his objection to burdening the Constitution with "specific strictures," but my concept of the terms of an environmental

SOCIETY OF AMERICAN FORESTERS
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COMMITTEE ON MERCHANT MARINE AND FISHERIES

July 19, 1994

The Honorable Gerry E. Studds, Chairman
Committee on Merchant Marines & Fisheries
U.S. House of Representatives
1334 Longworth House Office Building
Washington, DC 20515-6230

Dear Mr. Chairman:

We are pleased to provide you with the enclosed copy of our position on the *Waterways Restoration Act of 1994*, and request that it be included in the *Record* of your July 19 hearing on H.R. 4289.

Sincerely,

Lawrence W. Hill
Director, Forest Policy

LWH/cas

Enclosure

THE PROFESSIONAL VIEW

SOCIETY OF AMERICAN FORESTERS
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Waterways Restoration Act of 1994
H.R. 4289

A Position of the Society of American Foresters*

The great Midwest floods of 1993 were a cruel reminder of the awesome influence natural occurrences can have on our daily lives. The damage done by this flooding can largely be attributed to the fact that there were no natural buffer areas present to help dissipate the stormwater due to the extensive levying of the midwestern waterway system and the lack of vegetation along much of its watercourses. The lack of natural stormwater drainage areas resulted in watercourses jumping levies and other water channelization structures to massively flood both agricultural and residential areas. The deforestation of riparian areas associated with agricultural production and urbanization has significantly reduced the amount of our nation's watercourses protected by forests. There is a definite need to provide land contiguous to our nation's watercourses with naturally established flood control mechanisms, such as riparian forests.

The United States also has a severe soil erosion problem. Soil washed from the nation's disturbed lands as surface runoff ends up as sediment and other suspended solids in natural watercourses at a rate of approximately 1.5 billion tons per year. The deleterious impacts of soil loss due to runoff seriously affect the flora and fauna of riparian ecosystems, as well as cause degradation of water quality in the associated watercourses.

The Society of American Foresters (SAF) has long recognized the importance of riparian areas in moderating floodwaters and intercepting sediment and other pollutants in stormwater runoff, and has advocated the sound management of our natural resources with these objectives in mind. SAF strongly supports the voluntary, non-regulatory restoration of riparian areas to improve flood and erosion control designed to protect the nation's waterways. The Society of American Foresters agrees with the general thrust of H.R. 4289, the *Waterways Restoration Act of 1994*, and urges Congress to adopt the language contained in this proposed legislation, specifically, the provisions for voluntary restoration of diverse waterway systems described in Section 14 of the bill.

The restoration plans for the riparian areas reclaimed under the *Waterways Restoration Act of 1994* should include an aggressive revegetation program that includes the return of indigenous, hydrophytic vegetation to the landscape. The restoration of a healthy riparian ecosystem requires the re-establishment of significant amounts of riparian forestland to the

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* Adopted by the Officers of the Society of American Foresters on May 26, 1994 and will expire May 25, 1995 unless, after thorough review, it is renewed by the SAF Council.

landscape. The benefits of riparian forestland and waterway restoration extend beyond flood control and water quality protection. These riparian areas also store water and provide shade and temperature stabilization for water, as well as afford essential habitat for birds, animals, fish, plants, and humans.

The 75%-25% Federal/non-Federal cost share ratio stated in H.R. 4289 for voluntary non-structural, community-based projects is admirable. However, SAF does have some reservations about the source of Federal funding for this program. SAF is pleased that no new forms of taxation are suggested, however, we are concerned about how the Soil Conservation Service will reallocate its budget to pay for the program, and how this reallocation of funds will affect the structure and effectiveness of the agency. The potential effects of the budget re-allocation must be given serious consideration in the debate over the bill's language.

In conclusion, the Society of American Foresters believes that the restoration of our nation's watercourses is an important part of conserving its natural resources, and is best served through voluntary, non-regulatory approach. Furthermore, dispensing Federal cost-share assistance for this type of beneficial program, independent of other cost-share programs already in place, is a reasoned and necessary step for providing environmental protection, as long as the funding does not adversely affect the existing environmental initiatives of other federal agencies.

The Society of American Foresters appreciates the opportunity to make our position known to Congress, and urges you to support the broad concept of H.R. 4289, the *Waterways Restoration Act of 1994*, while at the same time taking a critical look at the impact the legislation will have on the budget allocations of the Soil Conservation Service.

ABOUT THE SOCIETY

The Society of American Foresters, with about 18,000 members, is the national organization that represents all segments of the forestry profession in the United States. It includes public and private practitioners, researchers, administrators, educators and forestry students. The Society was established in 1900 by Gifford Pinchot and six other pioneer foresters.

Objectives of the Society are to advance the science, technology, education, and practices of professional forestry in America and to use the knowledge and skills of the profession to benefit society. Members subscribe to a code of professional ethics.

The Society is the accreditation authority for professional forestry education in the United States. The Society publishes the Journal of Forestry, the quarterlies, Forest Science, Southern Journal of Applied Forestry, Northern Journal of Applied Forestry, Western Journal of Applied Forestry, and the annual Proceedings of the Society of American Foresters national convention.

Salmonid Restoration Federation

P.O. BOX 4260 • ARCATA, CALIFORNIA 95521 • (707) 444-8903

July 8, 1994

The Honorable Dan Hamburg
U.S. House of Representatives
Washington, D.C. 20515

Dear Dan:

Our organization represents men and women actively engaged in the restoration of California's salmon, steelhead and trout populations and their habitat. Our constituency consists of over 3000 individuals involved in a variety of watershed and fish habitat restoration, small-scale artificial propagation and fishery resource conservation education activities.

As you know, over the past several months SRF, in collaboration with several other fishery conservation advocacy organizations, has been working closely with your Mendocino County District Aide David Nelson to craft a Russian River fishery restoration bill that would establish an effective framework for the restoration of the basin's salmon and steelhead populations. We wanted a bill that would be action-oriented, would establish a planning and prioritization process for implementing habitat restoration projects so that only the most critical cost-effective projects would be funded by the bill, and would establish an advisory body for the purpose of optimizing public involvement and development of cooperative partnerships between the myriad of interest groups and agencies involved in basin fishery issues. We would like to express our appreciation for David's patience, willingness to listen and learn, and interest in crafting the best possible bill.

Yesterday, I and representatives of several key fishery conservation organizations met with David to express our shared opinion that three technical changes in HR 4408's text needed to be made in order to insure that the bill's goals and objectives would be met. At the conclusion of the meeting, David assured us that the changes would be made in the form of a friendly amendment on or before the July 19 hearing before the House Merchant Marine and Fisheries Committee.

Amended as promised, this bill can truthfully be touted as a model for future federal river fishery restoration legislative efforts. As students of the implementation of two major federal river fishery restoration programs in California, we are gratified by your willingness to learn from and avoid repeating the past mistakes we've brought to your attention.

By facilitating completion of a state-produced comprehensive basin fishery restoration plan, minimizing administration overlays and thus administration costs, laying the groundwork

for agency cooperation and coordination, and building a formal framework for optimizing public input and active involvement, HR 4408, in our view, addresses all of the major criticisms of previous fishery restoration program legislation. These include:

- Uncoordinated and haphazard project implementation,
- Excessive administration costs that consume funds that should be spent on actual restoration work,
- Lack of progress due to interagency squabbles and over-management,
- Programmatic barriers that discourage land and water users from becoming program cooperators, and
- Lack of public access to the decision making process that diminishes program support.

Therefore it is with a great deal of pleasure that we offer HR 4408 our unconditional and enthusiastic support. Congratulations on a job well done!

Best regards,

Jud Ellinwood

Jud Ellinwood
Executive Director

cc: Mr. David Nelson

CALIFORNIA NATIVE PLANT SOCIETY
Milo Baker Chapter
P.O.Box 195, Rio Nido, CA. 95471

Pitkin Lily
Lilium pitkinense

Rep. Dan Hamburg
114 Cannon Building
U.S. House of Representatives
Washingthon, D.C. 20515

July 17, 1994

Dear Representative Hamburg,

We are writing in support of the Russian River Fisheries and River Restoration Act HR 4408. The California Native Plant Society believes the Russian River is an inoredibly important resource and we should do all we can to protect it.

Riparian habitats all over California are in serious trouble and the Russian River is no exception. Signs of degradation are apparent all along the river, but perhaps the most obvious is the collapse of a once famous native fishery.

There are many issues that effect the health of a river. A concern of our group is the native plant communuity which flanks the river. Healthy and intact riparian woodlands are vital to a healthy river. The riparian plant community stabilizes riverbanks, controls soil erosion, provides soils that absorb rainfall and recharge groundwater and provides abundant food and cover for a great variety of wildlife.

Birds, mammals, reptiles, amphibians, invertebrates, and fish depend on the river for survival and of course we do too. The river provides drinking water, irrigation for agriculture, many

recreational uses and a refuge for people and animals. Clearly a healthy river would be good for the economy.

We commend you for your efforts to preserve and restore the Russian River and stand ready to help in any way possible.

Sincerely,

Sherrie Althouse

Sherrie Althouse
Legislative Chair
Milo Baker Chapter, CNPS

Friends Of the Russian River

P.O. Box 329, Cazadero, CA 95421 (707) 632-6119

July 13, 1994

Rep. Dan Hamburg
114 Cannon Bldg.
U.S. House of Representatives
Washington, D.C. 20515

Dear Rep. Hamburg,

Friends of the Russian River (FORR) is an organization established with the aims of preserving, restoring and enhancing the natural values of the Russian River. Our constituency includes twenty coalition groups representing fisheries organizations, business, agricultural and environmental groups in Sonoma, Mendocino and Marin Counties.

Our by-laws do not allow FORR to make policy statements in the name of coalition members, however FORR's Board of Directors is happy to show our support for the Russian River Fisheries and River Restoration Act (H.R. 4408).

Our organization was formed soon after the congressional hearings on the future of the Russian River sponsored by yourself and Rep. Lynn Woolsey. Those hearings were held at a time when it was becoming increasingly apparent that the Russian River's once world class native steelhead and salmon fishery were in imminent danger of extinction. It was also apparent that only a comprehensive fishery restoration program involving state, federal and local efforts would turn the tide.

For the past year, FORR has participated as a member of the California Coastal Conservancy's Technical Advisory Committee for their Russian River Resources Enhancement Plan. We have been impressed by the thoroughness of the Conservancy's scientific consultants and their openness to questions and suggestions. We are confident that the project that is finally proposed will adequately deal with the river's most serious hydrological and geomorphologic problems and meet the test of public acceptance.

Your bill, H.R. 4408, by authorizing funding for fisheries studies and restoration and for mainstem enhancement projects, is recognition that the long-term health of the Russian River will depend on both restoring habitat in the river's tributaries and dealing with the mainstem's critical problems of incision, downgrading and bank erosion.

Last week a representative from FORR and several fishery conservation organizations met with your District Director, David Nelson, to iron out some technical difficulties with the bill as introduced. We are pleased that Mr. Nelson agreed to the changes and that he assured us that the bill would be amended to reflect them. The meeting demonstrated the consensus among fishery, groups that the bill avoids the mistakes of past restoration efforts and provides a framework for future success.

Therefore, Friends of the Russian River enthusiastically endorses H.R. 4408.

I would like to conclude by expressing our gratitude to you and Rep. Woolsey who have recognized that the Russian River is the lifeblood of three counties, and have taken this important step to restore it to health. The efforts of Rep. Woolsey and Rep. Hamburg will be remembered by all of us who wish to pass on to future generations the benefits of the resources and natural values of the Russian River.

Sincerely yours,

Tom Roth

Tom Roth
Executive Director

cc: Rep. Lynn Woolsey

CALIFORNIA TROUT

KEEPER OF THE STREAMS

JUL 18 1994

July 14, 1994

To whom it may concern,

California Trout, Inc. is a non-profit conservation organization dedicated to protecting and restoring wild trout, native steelhead, and their habitat. We represent over 4,000 sportfishermen, and over 60 affiliated angling clubs throughout California. One of our great concerns is the decline of fisheries, and the negative economic impact that decline promises for local communities.

We wholeheartedly support Representatives Hamburg and Woolsey's Russian River Fisheries And Riverbed Restoration Act. This bill is clearly a vital contribution to current efforts of restoring this once great river to some of its former grandeur. Once a streamflow regime study is incorporated into this bill the process of restoring the river and its surrounding communities to health can begin in earnest.

Not so long ago The Russian was one of the largest fisheries on the West coast. This river's runs of salmon and steelhead supported a commercial fishery, a large sport fishery, and all of the related industries. Over the years, poor resource decisions have robbed the public trust of this natural treasure. We at CalTrout laud this effort to begin the slow process of returning this bounty to the public.

Sincerely,

Michael Bowen
Bay Area Manager

BAY AREA OFFICE: 870 MARKET STREET, SUITE 859 ◇ SAN FRANCISCO, CA 94102 ◇ (415) 392-8887

Responses to Questions from Dan Hamburg for July 19, 1994 hearing on H.R. 4481 -- The National Aquatic Ecosystem Restoration Act of 1994--by Beth Norcross, Legislative Director, American Rivers

1. **In your testimony you commented on the appropriateness of imposing fees on use or degradation of federally supported activities to pay for restoration and indicated there is public support for such fees. Could you comment further on this?**

A survey conducted by Mellman and Lazarus and Opinion Research Corporation for American Rivers in January, 1993 (results enclosed) indicated that the public supports the goals of river restoration even if it means higher monthly utility rates to them. Indeed 88% of Americans favor requiring power companies to put 5% of their profits into protection and restoration of the rivers on which their facilities are located. Almost 90% of Americans favor requiring utilities to place fish ladders and screens on dams and 84% favor shortening the duration of dam licenses so that power companies will have to upgrade their dams more frequently. Interesting 65% of the Americans polled indicated that they would still favor requiring dam owners to contribute a percentage of their gross revenues for environmental projects even if it meant an increase in their utility rates.

A more recent public opinion poll done by Stuart Elway, a private pollster from Seattle, surveyed 450 Washington voters regarding restoring endangered salmon runs. 73% of respondents said they would be willing to pay $1 a month more on their electric bill to make adjustments to salmon-threatening Northwest dams, with 39% willing to pay as much as $5 a month. 48% said that they would vote to raise taxes to restore salmon runs, and 54% said government should spend more money to restore wild salmon runs.

These data indicate that the American public is willing to put its money where its mouth is. The public is very concerned about river health in general as well as about region-specific issues, like salmon decline in the Northwest, and Americans are willing to make short-term sacrifices to restore these resources.

2. **In your testimony you pointed out that H.R. 4481 provides the opportunity for identification of actions federal agencies can take administratively towards establishment and implementation of a national strategy. Do you have any specific ideas at this point as to what some of these actions might be?**

Right now our aquatic ecosystems are managed by a hodgepodge of federal, regional, state and local agencies, often having competing missions and objectives. One of the first steps

federal agencies could take administratively is to provide for a mechanism to coordinate these diverse parties by basin or river system. Beyond that, each individual agency should evaluate what policies or statutory guidance it is working under which undermines the goal of aquatic protection and make recommendations for change where appropriate. Some of these recommendations will require Congressional action, but much of it could be handled administratively.

For example, full-cost pricing of all of our public resources would be a good place to start. If the prices for all of the resources under the public domain -- water, timber, minerals, grazing, etc. -- reflected the true cost (both financial and environmental) of producing them, the market would produce far greater conservation and more selective use. (For example, ratepayers in the Northwest now enjoy electricity rates about 1/2 that of the national average, and not surprisingly have one of greatest per capita energy use rates in the country.) Much of the full-cost pricing concept could be implemented administratively, and in places where it cannot be (the 1872 Mining Act stands as one obstacle) lands can be taken out of production administratively until such time as Congressional reform can be enacted.

Another opportunity for significant improvement of the nation's aquatic ecosystems through administrative measures is national floodplain management. The nation's current flood control management "system" is responsible for much of the ongoing damage to aquatic ecosystems. Levees and channelization have cut thousands of miles of rivers off from their natural flood plain, destroying valuable wetlands, trapping often-toxic sediment, and altering natural channels. The Great Flood of 1993 demonstrated that as the Corps of Engineers and the Soil Conservation Service continued to straight jacket the Mississippi, it not only slowly destroyed the ecological integrity of the river, but also invited ill-advised development along the river's banks by providing a false sense of security.

In June 1994, the Interagency Floodplain Management Review Committee released a comprehensive far-reaching report on the 1993 summer flooding and made a series of progressive recommendations, most of which can be implemented administratively. Among the recommendations are revisions to the National Flood Insurance Program to discourage floodplain development, changes in the process by which the Corps evaluates federal water projects to include environmental objectives and a number of mechanisms for coordination and cooperation.

By way of example, I have mentioned only a couple of opportunities for federal agencies to administratively make significant changes to the management, protection and restoration of the nation's aquatic ecosystems. Many other recommendations would undoubtedly come out of a thorough, comprehensive review.

POLL RESULTS: NATIONAL SURVEY

FINDING: Americans overwhelmingly support the goals of the national coalition seeking to reform the Federal Energy Regulatory Commission and restore the Nation's rivers, including requiring power companies to set aside up to five percent of their revenues from hydrodams to clean up and protect rivers.

A nationwide survey of 1,009 adults reveals that Americans overwhelmingly support the goals of the national coalition seeking to clean up and protect the Nation's rivers.

*An overwhelming majority of Americans (88%) *favor* requiring power companies to set aside five percent of the money they make from producing electricity at dams to clean up and protect the rivers these dams are on. In fact, 67% of Americans *strongly favor* this concept while only 8% oppose it.

*Even when the specter of higher utility rates is raised, a majority of Americans still support requiring power companies to set aside money to clean up and protect the rivers dams are on. [64% of those who favor requiring dams owners to set aside five percent of the money they make.]

*Nearly nine of ten Americans (89%) *favor* requiring utility companies to provide fish ladders over dams and screens over dams' electric turbines so that fish can safely pass by the dam. Seventy percent *strongly favor* fish ladders and screens while only 6% oppose.

*Eighty-four percent of Americans favor shortening the duration of dam licenses so that power companies will have to more frequently upgrade their dams with technological advances that make them more efficient and safer for the environment. Fifty-eight percent *strongly favor* this idea. [Presently, the federal government licenses dams for 30 to 50 years.]

These results come from a survey conducted by *Mellman and Lazarus* and *Opinion Research Corporation* for American Rivers during the period January 28, 1993 through January 31, 1993. The survey interviewed 1,009 randomly-selected adults living in private households in the United States.

A tabular report of survey questions follows.

TABULAR REPORT

QUESTION: Now I'd like to read you some proposals people have made about hydroelectric dam licenses. For each, please tell me whether you would strongly favor, somewhat favor, somewhat oppose or strongly oppose such a proposal. First...

#1. Requiring utility companies to provide fish ladders over dams and screens over dams' electric turbines so that fish can safely pass by the dam going both upstream and downstream. These changes would keep fish from being ground up in the dam's turbines and help fish reach spawning areas. [N=1,009]

	%
Strongly Favor	70
Favor	19
Somewhat Oppose	3
Strongly Oppose	3
Not Sure/Don't Know	5

#2. Shortening the duration of dam licenses so that power companies will have to more frequently upgrade their dams with technological advances that make them more efficient and safer for the environment. [N=1,009]

	%
Strongly Favor	58
Favor	26
Somewhat Oppose	5
Strongly Oppose	5
Not Sure/Don't Know	6

#3. Requiring power companies to set aside five percent of the money they make from producing electricity at dams. This money would be used to clean up and protect rivers these dams are on. [N=502 – asked of half the sample]

	%
Strongly Favor	67
Favor	22
Somewhat Oppose	4
Strongly Oppose	4
Not Sure/Don't Know	4

#4. Requiring power companies to set aside one percent of the money they make from producing electricity at dams. This money would be used to clean up and protect rivers these dams are on. [N=507 – asked of half the sample]

	%
Strongly Favor	68
Favor	19
Somewhat Oppose	4
Strongly Oppose	4
Not Sure/Don't Know	4

#5. Would you still favor requiring dam owners to contribute a percentage of their gross revenues for environmental projects if it meant an increase in your utility rates? [N=886 – those who answered strongly favor or favor to questions #3 and #4]

	%
Yes	65
No	29
Don't Know/No Response	6

Sierra Club
Columbia Basin Field Office
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Pullman, WA 99163
(509) 332-5173
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Testimony
of

Jim Baker
Northwest Salmon Campaign Coordinator
Sierra Club

to the

Committee on the Merchant Marine and Fisheries
Hon. Gerry Studds, Chairman
U.S. House of Representatives

on

Recovery Planning for Salmon in the Columbia/Snake River Watershed

July 5, 1994

Mr. Chairman and Members of the Committee, the Sierra Club, a national environmental organization of 500,000 members, appreciates this opportunity to provide written testimony to the Committee on recovery planning for threatened, endangered, and "at risk" salmon in the Columbia/Snake River watershed of the Pacific Northwest. As you know, the Committee held a hearing on this subject on this date, June 30, 1994. We would respectfully request that our testimony be included in the official record of that hearing.

The Sierra Club believes that the Pacific Northwest can recover declining wild salmon runs in the Columbia/Snake watershed, and can do so not only without significant economic impacts, but in fact, with important

economic gains regionally, and in some instances, locally. The Northwest can have salmon *and* hydroelectricity, and need not choose between them. But to accomplish this goal, the Northwest must promptly and creatively abate all human-inflicted causes of salmon mortality, particularly the impact of federal hydroelectric dams on the rivers mainstems which are responsible for 80-95 percent of these fish mortalities. In our view, the region must proceed with its recovery effort concentrating on how to make the economy work with the salmon rather than the old failed strategy of making the fish fit into hard-wired economic constraints. And scientific guidance for Columbia/Snake salmon recovery must come from the full range of biological expertise, particularly from the professional judgment of the federal and state fisheries agencies and the American Indian Tribes.

In stark contrast, several parties to the salmon recovery debate, including the Bonneville Power Administration (BPA), the U.S. Army Corps of Engineers, the Pacific Northwest Utilities Conference Committee, and the Columbia River Alliance, have maintained that the Snake River Salmon Recovery Team empaneled by the National Marine Fisheries Service (NMFS), and its recommendations, have a special and superior status, standing, legitimacy, and authority in the recovery planning process. For example, they have argued that, in the biological opinions for operation of the hydropower system, NMFS can or should require only those measures recommended by the Recovery Team.

These parties do not make this argument on the basis of law because they can not; the Endangered Species Act (ESA) does not require appointment of a Recovery Team much less grant it any special status. They try to make their case by claiming that the Recovery Team recommendations represent a recovery plan based on hard science written by an independent panel of scientists. The Sierra Club respectfully submits to the Committee that, upon close inspection, this case by the hydropower agencies and industry simply does not hold water.

• The Bevan Team has not produced the recovery plan.

The Recovery Team recommendations are not a recovery plan. Nowhere in its recommendations does the Recovery Team take the pledge: "If you do this, they will come back." The Bevan Team document does not contain rebuilding schedules, performance standards, and many other of the basic attributes of a recovery plan as required by the ESA as interpreted by the federal courts.

While acknowledging the fact that petitions are pending to list salmonids in the middle reach of the Columbia River, the Team's recommendations needlessly focus exclusively on the threatened and endangered Snake River salmon, and do not take an ecosystem approach. For example, the Recovery Team rejects a drawdown of John Day reservoir

to minimum operating pool -- a measure approved by the Northwest Power Planning Council in its *Strategy for Salmon* -- on the basis that the vast majority of Snake River salmon smolts are collected above, and transported past, the John Day pool. However, due to a prohibition against juvenile fish transportation by an administrative law judge and the Federal Energy Regulatory Commission, the vast majority of salmonid smolts from the middle reach of the Columbia River are not collected and barged downstream. So regardless of the strategy for moving Snake River smolts past the dams and reservoirs, operation of John Day reservoir at minimum operating pool would clearly provide major benefit to mid-Columbia salmonid stocks which have been petitioned for ESA protection.

In a similar shortcoming, the Team now recognizes that the dams are the predominant cause of human-inflicted mortalities to these fish. Nonetheless the recommendations call for more research before taking action to relieve the blockage to juvenile salmon migration at the dams and through the reservoirs. It is not clear or certain from the Recovery Team or other biologists that tests can be designed and conducted in the near term to completely resolve the scientific questions raised in the Bevan document. In any case, the ESA requires that the recovery plan direct immediate action to save listed species based upon the best available scientific information -- not some wishful future study.

Above all, the NMFS Recovery Team and its work are utterly advisory, and not a requirement of the ESA. NMFS and only the agency can write the official recovery plan for the threatened and endangered Snake River salmon. In other words, the Team and its recommendations are not an integral part of the salmon recovery planning process.

So contrary to the concerns raised by some parties, whether or how the administration, the agency, and/or the Congress may or may not deal with the Team's recommendations does not threaten, much less impact, the integrity of the recovery planning process. An advisory panel with no status or force of law behind it has rendered its judgment or best guess on salmon biology -- period, full stop. Under the law, NMFS retains the options to adopt the Team's recommendations, modify them, or shelve them entirely -- because the responsibility to write the recovery plan under the law lies with NMFS, not the Recovery Team.

• The Recovery Team recommendations are not science.

Laudably NMFS and the Recovery Team submitted the draft recommendations to scientific peer review. However, the peer review strongly criticized and rejected major portions of the Team's report, particularly those chapters dealing with downstream passage and harvest. Commentators frequently noted that the recommendations were not internally consistent, not based upon sound scientific reasoning or computer

modeling, and not aware or inclusive of all biological information. Moreover, we know of no real substantive change or reversal made by the Team between the draft and final documents in response to peer review.

For example, the final document states: "The Team notes that there are significant problems with Northwest salmon and steelhead populations in streams that are not tributaries of the Columbia and Snake Rivers and are unaffected by dam development. For this reason, we conclude that the impacts of man on the ecosystem are far greater than just mainstem dam construction" (final, p. VIII-69). This brand of scientific reasoning also reachs the conclusion that cigarettes do not cause lung cancer because some non-smokers contract the disease.

For instance, the Team gave no consideration to combining reservoir drawdowns of the four Lower Snake reservoirs and flow augmentation in the Lower Columbia pools in order to provide comprehensive juvenile fish passage through the hydropower system. Such an approach lies at the heart of the *Strategy for Salmon* from the Northwest Power Planning Council and of the *1994 Detailed Fishery Operating Plan* of the Columbia Basin Fish and Wildlife Authority (CBFWA).

And for example, largely based upon a study contracted by BPA, the Team concluded that tests have proven a positive benefit from the juvenile fish transportation program. In the draft recommendations, the Team wrote: "A review of recent transport benefit tests conducted by a group assembled by CBFWA (Ad Hoc Transportation Review Group 1992) was critical of certain aspects of the tests, but did not provide any evidence to change the conclusions of the Team that the transport program is a better option than others" (draft, p. VIII-23-24). In the final recommendations, the Team amended: "A review of recent transport benefit tests conducted by a group assembled by CBFWA (Ad Hoc Transportation Review Group 1992) was critical of certain aspects of the tests, but did not provide any evidence to change the conclusions of the Team that for most river flow conditions, the transport program is a better option than others" (final, p. VIII-44). The CBFWA group demonstrated that the fish transportation tests were invalid, and that the smolt barging program does more harm than good for young salmon. The purpose of the CBFWA review was *not* to provide alternatives to fish barging, or for that matter, to convince the Team of anything.

So the Team's dismissal of the CBFWA review in this manner is patently unfair. Instead of giving due consideration to the CBFWA report, the Team relied upon a study (Park 1993) contracted by BPA in order to reach its findings that juvenile fish transportation provides biological benefits, and can serve in the front wave of salmon recovery measures. In May of this year, Dr. Phillip Mundy and a distinguished group of biologists — with participation by the Corps and BPA — completed a new peer review of the juvenile fish transportation program under contract to the U.S. Fish and

Wildlife Service. Among other findings, the Mundy review confirms that, in fact, improvement of in-river migration conditions would provide far more benefit than transportation as a measure in a scientifically sound recovery plan. Admittedly the Mundy review was not available to the Team. However, if the Team had not given the CBFWA review such short shrift, the final recommendations would not now stand in such stark contract to the Mundy peer review.

Some of the Recovery Team's recommendations have nothing to do with science at all. For example, the Team calls for putting NMFS completely in charge of Northwest salmon recovery, but this recommendation comes with no explanation -- scientific or otherwise -- for why NMFS is the best choice. In fact, putting NMFS exclusively in charge of Northwest salmon would only serve to further "federalize" the recovery effort, and write the states and Tribes out of decision-making. In his March ruling in *Idaho et. al. v. NMFS et. al.*, U.S. District Judge Malcoln Marsh states accurately that the states and Tribes filed their lawsuit because they had been ignored by the federal agencies. Given the mandates in the Northwest Power Planning Act, the Northwest Power Planning Council would seem a good candidate to lead the recovery effort. Given the states' legal responsibilities as well as the Tribes' treaty rights, the Columbia Basin Fish and Wildlife Authority (which includes NMFS and the U.S. Fish and Wildlife Service) would offer excellent leadership, especially for providing strong and effective coordination across all the federal, state, and Tribal jurisdictions for salmon. In any event, the Team's recommendation is public policy making -- not science.

Similarly the rationales for other recommendations have nothing to do with science. For example, the Team avers, "Even total elimination of U.S. ocean and in-river harvests would offer little prospect of recovery," but then states, "The real importance of harvest reduction is that it can be done fairly quickly" (final, p. IX-23). In other words, cuts in salmon fishing will not do any good, but will give the illusory sense of taking prompt action. The Team recommends its draconian and economically crippling harvest reductions not on the basis of hard science, but rather due to timeliness.

• The Recovery Team is not independent.

Given the highly charged politics which have surrounded these fish for decades, it is hard to imagine any expertise on Northwest salmon -- scientific or otherwise -- that is truly independent, that is free from bias or influence, that can render an objective judgment on salmon biology. For example, to accomplish a simple review of the scientific literature on the relationship between water velocity and juvenile fish survival, the Northwest Power Planning Council last year -- attempting to elude researcher bias and Northwest political influence -- went to the lengths of contracting with a scientist from Oak Ridge National Laboratory in Tennessee. (By the way,

after examining the biological research from around the world, the Council's contractor Glenn F. Cada concluded that "the general relationship of increasing survival with increasing flow in the C[olumbia] R[iver] B[asin] still appears to be reasonable." The Team claims that the relationship is "uncertain.")

So environmentalists have doubted that any NMFS Recovery Team, including this one, might maintain such independence as to act as final judge and jury on the biology of salmon recovery. That the members received no compensation for their service on the Team is certainly no guarantee of scientific objectivity.

On salmon passage in the hydropower system, the Team's expertise resided with Prof. Theodore C. Bjornn, Prof. Peter C. Klingeman, and Mr. James W. Litchfield. Along with harvest, the Team's recommendations to address hydropower impacts have been at the center of controversy in peer review and public comment.

Clearly qualified to serve on the Team by virtue of his long tenure as Director of Power Planning for the Northwest Power Planning Council, Mr. Litchfield, an engineer, was at the time of his appointment to the Team, and is today, a private consultant to the Northwest electric utility industry. In his own defense, Mr. Litchfield has publicly stated that he purposefully accepted no contracts from any beneficiary of federal Columbia River hydropower *during* his service on the Recovery Team. However, is it reasonable to believe that Mr. Litchfield, a relatively young man, did not give a thought to future contracts *after* his service on the Recovery Team? Would the prospects for his consulting practice appear as bright if the Recovery Team on which he served very visibly had reported recommendations which did not meet with such warm approval by the electric utility industry?

Dr. Theodore Bjornn is a respected, tenured professor of fisheries biology at the University of Idaho, and pillar of the campus' Cooperative Fish and Wildlife Research Unit, who has performed world-class research on salmon passage in the Columbia Basin hydroelectric system. However, through requests under the Freedom of Information Act (FOIA), the Sierra Club has learned that, unlike Mr. Litchfield, Dr. Bjornn during his tenure on the Recovery Team continued to conduct research under two contracts to the U.S. Army Corps of Engineers and the Bonneville Power Administration. Photocopies of the relevant pages from the Corps and BPA responses to our FOIA requests are appended to this testimony.

According to the Corps' FOIA response dated February 14, 1994, the Cooperative Fish and Wildlife Research Unit of the University of Idaho headed by Dr. Bjornn performed Corps contracts to study adult salmonid passage at mainstem hydroelectric dams for the following years in the following total amounts:

Year	Corps funding	BPA funding
1990	$479,030	
1991	828,100	
1992	780,018	$294,000
1993	334,961	304,420
TOTAL:	$2,422,109	$598,420

According to the BPA's FOIA disclosure dated December 3, 1993, Dr. Bjornn performed research under U.S. Fish and Wildlife Service contracts to study predation of juvenile salmon in mainstem reservoirs from the following dates in the following amounts funded by BPA:

Contract Date	BPA funding
July, 1988	$255,032
June, 1989	231,047
July, 1990	141,646
March, 1991	253,898
January, 1992	119,483
February, 1992	569,606
February, 1993	129,704
March, 1993	938,743
May, 1993	125,521
TOTAL:	$2,764,680

The grand total by 1993 of these two contracts on-going during Dr. Bjornn's tenure on the NMFS Recovery Team was $5,785,209.

According to the FOIA responses, these are just two of several contracts over the years by which the Corps and BPA funded research by Dr. Bjornn and his Cooperative Fish and Wildlife Research Unit at the University of Idaho. Therefore, is it reasonable to believe that, during his service on the Recovery Team, Dr. Bjornn, albeit a tenured professor, did not give a

thought to funding for his world-class research? One familiar with modern institutions of higher learning knows the sometimes intense pressures brought to bear on the faculty to bring in research dollars.

Mr. Chairman, the Sierra Club does not provide this information in our testimony lightly or gladly. It is distasteful to look into these questions; we would have preferred not to. However, by its very nature, the assertion from several parties that the Recovery Team is independent, free from bias, and qualified to act as ultimate arbiter of salmon recovery biology raises the issue of professional objectivity and integrity. The Sierra Club did not make this assertion, which forces the Committee and us to confront some unpleasant questions.

With this information provided to the Committee in our testimony today, we do not even suggest that Dr. Bjornn or Mr. Litchfield have personally profited by their service on the Recovery Team or by its recommendations. We do not accuse Mr. Litchfield, Dr. Bjornn, BPA, or the Corps of bribery, corruption, conspiracy, or any illegal activity whatsoever.

But the Sierra Club does reject the assertion that the NMFS Recovery Team was or is independent, and free from bias or any outside influence. We respectfully urge the Committee to reject this proposition, too.

• **How should salmon recovery planning proceed?**

First of all, the advisory Recovery Team and its recommendations should have little or no bearing on whether or not NMFS should require interim or emergency actions such as reservoir drawdowns, spill, curtailment of fish barging to "spread the risk," flows, surface collector, etc. While preparing the official recovery plan, NMFS should take steps to protect threatened and endangered salmon based on the scientific merits -- not on the recommendations of the Recovery Team.

Second, and most important, NMFS should act promptly to complete the official recovery plan for these listed fish runs in the Snake River watershed. In doing so, NMFS should give due consideration to the full range of scientific information and judgment, including:

— The Recovery Team recommendations;
— All peer review of the Recovery Team recommendations;
— All new and relevant scientific information, particularly the recent peer review of the juvenile fish transportation program conducted by Dr. Phillip Mundy and a distinguished team under contract to the U.S. Fish and Wildlife Service;
— The *Strategy for Salmon* from the Northwest Power Planning Council;

— Negotiations on and/or settlement of *Idaho et. al. v. NMFS et. al.* before Judge Malcolm Marsh;
— The forthcoming recovery plan from the Columbia River Inter-Tribal Fish Commission; and
— The *Detailed Fishery Operating Plan* from CBFWA for hydropower passage.

Clearly the Recovery Team recommendations should not become the first or the last words on salmon recovery.

Finally, NMFS should take some immediate emergency steps to prevent further decline of the Snake River salmon. As acknowledged in the Recovery Team recommendations, spill has been demonstrated over and over again to give migrating juvenile salmon the safest possible passage past the dam structures themselves. Flow augmentation and reservoir drawdowns offer smolts the safest path through the reservoirs. Therefore, NMFS should secure the maximum possible fish flows, and work should begin immediately so that John Day reservoir can operate at minimum operating pool (MOP) and Lower Granite reservoir can operate below MOP at the earliest possible date. At the very brink of extinction, salmon in the Columbia/Snake watershed simply do not have time to spare; nor does the Pacific Northwest economy.

DEPARTMENT OF THE ARMY
WALLA WALLA DISTRICT CORPS OF ENGINEERS
WALLA WALLA, WASHINGTON 99362 9265

February 14, 1994

REPLY TO
ATTENTION OF
Office of Counsel

Mr. James M. Baker
Conservation Assistant
Sierra Club
Route 2, Box 303-A
Pullman, Washington 99163

Dear Mr. Baker:

In response to your Freedom of Information Act request forwarded to the Corps of Engineers by Bonneville Power Administration, enclosed is information on contracts involving Professor Theodore C. Bjorn.

Since the cost is minimal, there will be no charge.

Sincerely,

Iva Mellen
Paralegal

Enclosures

FEB 11 1994

Planning Division (1165-2-26a) 10 February 1994

MEMORANDUM FOR Office of Counsel, ATTN: Janet Smith

SUBJECT: Freedom Of Information Act (FOIA) Request

1. This memo responds to Office of Counsel FOIA request memo dated 3 February 1994 (received 8 February).

2. The 13 January 1994 Sierra Club letter asks for project titles for 5 documents. These are already correctly listed in the "References Cited", p. 2-3, from the Draft Recovery Plan Recommendations for Peer Review. The first one (line 36-38, p. 2) is a draft document and was not retained by our office once a final report was issued. The final report is the one referenced on lines 7-9, p. 3, and is available in our office. That report is the end product stemming from one of four objectives addressed in a 1990 (through February 1991) scope of work with Idaho Cooperative Fish and Wildlife Research Unit (ICFWRU) in support of the development of the Adult Passage Evaluation, under the DA Form 2544 agreement (No. E86900070, with three change orders) with the ICFWRU funded by CENPD's Fish Passage Development and Evaluation Program. Funding for all four objectives totalled $479,030; of this, $228,344 was for capital outlay (equipment) that will be retained by the Corps; and $54,444 was for Oregon Department of Fish and Wildlife (ODFW) as subcontractor to the study effort. Dr. Bjornn is fully salaried by the U.S. Fish and Wildlife Service and received no reimbursement from this work order or any work order placed by the Corps of Engineers for this study (or Bonneville Power Administration (BPA) as cooperating funding agency when they participated in the 1991-94 study).

3. The two reports cited on p. 3, lines 4-6 and 10-13 are the first two annual reports submitted to date, for field year 1991 and for 1992. The 1991 Annual Report is incorrectly cited. The correct list of authors should be: Bjornn, T.C., R.R. Ringe, K.R. Tolotti, P.J. Keniry, J.P. Hunt, C.J. Knutsen, and S.M. Knapp. The 1992 Annual Report is a draft document. Note that this draft is improperly cited. The correct citation should read: Bjornn, T.C., J.P. Hunt, K.R. Tolotti, P.J. Keniry, R.R. Ringe, S.M. Knapp, and C.J. Knutsen. 1993. Migration of Adult Chinook Salmon and Steelhead Past Dams and Through Reservoirs in the Lower Snake River and into Tributaries - 1992. U.S. Army Corps of Engineers, Walla Walla District Technical Report 93-1. Walla Walla (DRAFT). Both these documents are joint reports by the ICFWRU and the Oregon Department of Fish and Wildlife, subcontractor to ICFWRU.

CENPW-PL-ER
SUBJECT: Freedom Of Information Act (FOIA) Request

This work was conducted under DA Form 2544 agreement (E86910080 and E86920068). The Corps provided funding ($828,100 of which $262,788 was for the ODFW subcontract and $109,838 was for equipment) in 1991.

The BPA participated as a cooperating funding agency beginning in March 1992, and contributed $294,000 (Interagency Agreement DE-AI79-92BP41843) for accomplishment of two system objectives (evaluate effect of zero nighttime flow; radio track adult fish past Lower Granite Dam to spawning grounds) and shared partial costs for radio tags for the 1992 study year. The Corps provided $780,018, of which $483,361 went to ODFW's subcontract for their work performance. Note that there are additional costs incurred by the Corps for this study, such as purchase of radio tags, and costs to operate fish counting at Little Goose (through Washington Department of Wildlife). These costs are in addition to the ICFWRU and ODFW study costs.

The BPA provided $304,420 in March 1993 for the 1993 study year. These funds contributed support for the same objectives noted in the previous paragraph. The Corps provided the remaining funding ($334,961, of which $187,520 was equipment [to be retained by Corps upon completion of study]). The 1993 draft report is not yet available.

4. The fifth report referenced in the Sierra Club letter (lines 1-3, p. 3) is not a Corps of Engineer funded study, and we have no information available on that study.

5. The letter references any other contracts in which Dr. Bjornn has played a role. The Walla Walla District has had other research work conducted by Dr. Bjornn (Survival of Chinook Salmon Smolts as Related to Stress at Dams and Smolt Quality, 1984-87). Funding for this effort ranged between $7,000 to $9,400, annually. Any other documentation for work previous to this study is not available in this office. However, other reports are available that have been conducted by Dr. Bjornn for the Walla Walla District and include:

a. Effects of reduced nighttime flows on upstream migration of adult chinook salmon and steelhead trout in the lower Snake River. 1977. McMaster et al. (includes Bjornn)

b. Effects of altered flow regimes, temperatures and river impoundment on adult steelhead trout and chinook salmon. 1982. Stabler et al. (includes Bjornn)

CENPW-PL-ER
SUBJECT: Freedom Of Information Act (FOIA) Request

c. Evaluation of conditioning steelhead trout in cold water after rearing at 15 C. 1984. Bjornn and Ringe.

6. Please contact me if you have any questions regarding this memo.

Theresa Y. Barila

Enclosures

THERESA Y. BARILA
Fishery Biologist

CF:
Dr. Michael Scott
Unit Leader
Idaho Cooperative Fish and Wildlife
Research Unit
University of Idaho
Moscow, Idaho 83843

Dr. Ted Bjornn
Idaho Cooperative Fish and Wildlife
Research Unit
University of Idaho
Moscow, Idaho 83843

Rudd Turner
U.S. Army Corps of Engineers
North Pacific Division
P.O. Box 2870
Portland, Oregon 97208

CENPW-IM-S (Litigation Files - Harrison)

Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

DEC 3 1993

PJ

Mr. James M. Baker
Sierra Club
Columbia Basin Field Office
Route 2, Box 303-A
Pullman, WA 99163

Dear Mr. Baker:

Your Freedom of Information Act (FOIA) request, dated November 15, 1993, to the Administrator of the Bonneville Power Administration (BPA), was referred to me for response. We have searched our contract files and have identified two contracts that involve Professor Theodore C. Bjorn of the University of Idaho. These two contracts are entitled:

(1) Evaluation of Passage of Adult Chinook Salmon and Steelhead at the Lower Snake River Dam and Reservoir Projects, Department of Army, Walla Walla District, Corps of Engineers, contract number DE-AI79-92BP41843; and

(2) Magnitude and Dynamics of Predator-Caused Mortality on Healthy Juvenile Salmonids in Columbia and Snake River Reservoirs, United States Fish and Wildlife Service, National Fishery Research Center, contract number DE-AI79-88BP91964.

Information pertaining to these contracts is attached to this letter. If you have any additional questions, please feel free to call my Deputy, Gregory E. Drais. Mr. Drais can be reached at (503) 230-4981.

Sincerely

JA Johansen

Judith A. Johansen, Director
Division of Fish and Wildlife

Attachments:
(1) Agreement Number DE-AI79-92BP41843
(2) Agreement Number DE-AI79-88BP91964

BPA F 4220.31
(02-91)
(Previously BPA 1399 & 1270.01)

U.S. DEPARTMENT OF ENERGY – BONNEVILLE POWER ADMINISTRATION
AGREEMENT

PMIS
002
6/9/93

1. AGREEMENT NO.	2. AGREEMENT TYPE	3. MODIFICATION NO.	4. EFFECTIVE DATE	5. PROCUREMENT REQUEST NO.
FWS 14-16-0009-88-1828 DE-AI79-88BP91964	[X] Interagency [ ] Intergovernmental [ ] Intraagency [ ] Customer	A010	04/16/93	79-93BP71467

8. ORGANIZATION AND ADDRESS
U.S. Fish and Wildlife Service
National Fishery Research Center
Building 204, Naval Station Puget Sound
Seattle, WA 98115
013001

9. ORGANIZATION AND ADDRESS
U.S. Department of Energy
Bonneville Power Administration – SRPF
P.O. Box 3621
Portland, OR 97208-3621

7. TECHNICAL CONTACT	PHONE NO.	10. BPA TECHNICAL CONTACT	PHONE NO.
Tom Poe/W. Nelson	(509) 538-2299	Bill Maslen	(503) 230-5549
8. ADMINISTRATIVE CONTACT	**PHONE NO.**	**11. BPA ADMINISTRATIVE CONTACT**	**PHONE NO.**
M.L. Dixon	(206) 526-6287	Patrice Baker	(503) 230-5369

12. THIS AGREEMENT WAS NEGOTIATED PURSUANT TO
[ ] 31 U.S.C. 1535 (Federal) [X] 16 U.S.C. 832g (Other)
[ ] 16 U.S.C. 832a(1) (Customer) [ ] _____

13. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL
February 15, 1996 (No Change)

14. TITLE AND BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT. DOCUMENTS WHICH ARE ATTACHED TO AND BECOME A PART OF THIS AGREEMENT

PROJECT NO. 82-003:
SIGNIFICANCE OF PREDATION AND DEVELOPMENT OF PREY PROTECTION MEASURES FOR JUVENILE SALMONIDS IN THE COLUMBIA AND SNAKE RIVER RESERVOIRS

This Modification is issued to authorize the following:

1) Authorize additional funding for objectives 1.4, 1.6, 2.2, 2.4, 2.5, and subobjective 2.1.1 as follows:

CURRENT AGREEMENT TOTAL: $2,639,159.00
INCREASE MODIFICATION NO. A010: [redacted]
REVISED AGREEMENT TOTAL: $2,764,680.00 NTE

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

ATTACHMENT I -- Budget (April 16, 1993, through February 15, 1994)

If this is an Intergovernmental or Customer Agreement, the provisions on the reverse of this form are a part of the Agreement.

15. SUBMIT INVOICE TO
Division of Fish and Wildlife
ATTN: Billing Clerk - PJ
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208-3621

16. AMOUNT TO BE PAID BY BPA
$ 2,764,680.00 NTE

17. ACCOUNTING INFORMATION (BPA use only)
PJ 27 GNL F1122
Increase: $125,521.00

18. APPROVED BY (Signature) Marlene L. Haywood — DATE May 5, 1993
NAME & TITLE (Type or print)
Marlene L. Haywood, FWS-9-9-619
Contracting Officer

19. APPROVED BY (Signature) Delbert S. Olenslager — DATE 5/18/
NAME & TITLE (Type or print)
Delbert S. Olenslager
Contracting Officer

PMIS
OK
4/12/93

BPA F[redacted]
(02-91)
(Previously BPA 1398 & 1270.01)

U.S. DEPARTMENT OF ENERGY – BONNEVILLE POWER ADMINISTRATION

AGREEMENT

1 AGREEMENT NO	2 AGREEMENT TYPE	3 MODIFICATION NO	4 EFFECTIVE DATE	5 PROCUREMENT REQUEST NO
FWS 14-16-0009-88-1828 DE-AI79-88BP91964	☒ Interagency ☐ Intergovernmental ☐ Intrasagency ☐ Customer	A009	02/16/93	79-93BP16815

8 ORGANIZATION AND ADDRESS	9 ORGANIZATION AND ADDRESS
U.S. Fish and Wildlife Service National Fishery Research Center Bldg. 204, Naval Station Puget Sound Seattle, WA 98115	U.S. Department of Energy Bonneville Power Administration - SRPP P.O. Box 3621 Portland, OR 97208-3621
7 TECHNICAL CONTACT: Tom Poe/W. Nelson — PHONE NO.: (509) 538-2299	10 BPA TECHNICAL CONTACT: Bill Maslen — PHONE NO.: (503) 230-5549
8 ADMINISTRATIVE CONTACT: M.L. Dixon — PHONE NO.: (206) 526-6287	11 BPA ADMINISTRATIVE CONTACT: Patrice Baker — PHONE NO.: (503) 230-5369

012.001

12. THIS AGREEMENT WAS NEGOTIATED PURSUANT TO
☐ 31 U.S.C. 1535 *(Federal)* ☒ 16 U.S.C. 832g *(Other)*
☐ 16 U.S.C. 832a(l) *(Customer)* ☐ _____

13. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL
February 15, 1996 (No Change)

14. TITLE AND BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT, DOCUMENTS WHICH ARE ATTACHED TO AND BECOME A PART OF THIS AGREEMENT

PROJECT NO. 82-003:
SIGNIFICANCE OF PREDATION AND DEVELOPMENT OF PREY PROTECTION MEASURES FOR JUVENILE SALMONIDS IN THE COLUMBIA AND SNAKE RIVER RESERVOIRS

This Modification is issued to authorize the following:

1) Revise the Statement of Work. The revised Statement of Work supersedes all previous Statements of Work.

2) Revise the Terms and Conditions as per Attachment III.

3) Authorize additional funding for subobjective 2.1.1 only as follows:

CURRENT AGREEMENT TOTAL: $1,700,416.00
INCREASE MODIFICATION NO. A009: $938,743.00
REVISED AGREEMENT TOTAL: $2,639,159.00 NTE

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

ATTACHMENT I -- Statement of Work
ATTACHMENT II -- Budget (February 16, 1993, through February 15, 1994)
ATTACHMENT III -- Terms and Conditions Revisions

If this is an Intergovernmental or Customer Agreement, the provisions on the reverse of this form are a part of the Agreement.

15. SUBMIT INVOICE TO:
Division of Fish and Wildlife
ATTN: Billing Clerk - PJ
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208-3621

16. AMOUNT TO BE PAID BY BPA
$ 2,639,159.00 NTE

17. ACCOUNTING INFORMATION *(BPA use only)*
PJ 27 GNL F1122
Increase: $938,743.00

18. APPROVED BY *(Signature)*	DATE
Marlene L Haywood	March 30, 1993
NAME & TITLE *(Type or print)*: Marlene L. Haywood, FWS-9-9-619 Contracting Officer	

19. APPROVED BY *(Signature)*	DATE
Delbert S Olenslager	4/7/93
NAME & TITLE *(Type or print)*: Delbert S. Olenslager Contracting Officer	

BPA F 4220.31 (02-91) (Previously BPA 1398 & 1270.01)

U.S. DEPARTMENT OF ENERGY – BONNEVILLE POWER ADMINISTRATION

PM/S 3/17/93

AGREEMENT

FWS-14-16-0009-88-1828

1 AGREEMENT NO	2 AGREEMENT TYPE	3 MODIFICATION NO	4 EFFECTIVE DATE	5 PROCUREMENT REQUEST NO
FWS-14-16-0009-88-1828 DE-AI79-88BP91964	X Interagency ☐ Intergovernmental ☐ Intraagency ☐ Customer	A008	01/15/93	79-93BP07151

6 ORGANIZATION AND ADDRESS	9 ORGANIZATION AND ADDRESS
U.S. Fish and Wildlife Service National Fishery Research Center Building 204, Naval Station Seattle, WA 98115 01300	U.S. Department of Energy Bonneville Power Administration - SRPF P.O. Box 3621 Portland, OR 97208-3621
7 TECHNICAL CONTACT: Tom Poe/W. Nelson — PHONE NO: (509) 538-2299	10 BPA TECHNICAL CONTACT: Bill Maslen — PHONE NO: (503) 230-5549
8 ADMINISTRATIVE CONTACT: M.L. Dixon — PHONE NO: (206) 526-6287	11 BPA ADMINISTRATIVE CONTACT: Patrice Baker — PHONE NO: (503) 230-5369

12. THIS AGREEMENT WAS NEGOTIATED PURSUANT TO

☐ 31 U.S.C. 1535 *(Federal)* ☒ 16 U.S.C. 832g *(Other)*

☐ 16 U.S.C. 832a(f) *(Customer)* ☐ _____

13. AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL

February 15, 1996 (No Change)

14. TITLE AND BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT. DOCUMENTS WHICH ARE ATTACHED TO AND BECOME A PART OF THIS AGREEMENT

PROJECT NO. 82-003:
SIGNIFICANCE OF PREDATION AND DEVELOPMENT OF PREY PROTECTION MEASURES FOR JUVENILE SALMONIDS IN THE COLUMBIA AND SNAKE RIVER RESERVOIRS

This Modification is issued to authorize revising the Terms and Conditions Progress Reporting Requirements as per Attachment I and to add funds for the purchase of research equipment detailed in Attachment II, Budget Addendum, as follows:

CURRENT AGREEMENT TOTAL:	$1,570,712.00
INCREASE MODIFICATION NO. A008:	129,704.00
REVISED AGREEMENT TOTAL:	$1,700,416.00

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

ATTACHMENT I -- Terms and Conditions Revised Reporting Requirements
ATTACHMENT II -- Budget Addendum

If this is an Intergovernmental or Customer Agreement, the provisions on the reverse of this form are a part of the Agreement.

15. SUBMIT INVOICE TO:	16. AMOUNT TO BE PAID BY BPA	17. ACCOUNTING INFORMATION *(BPA use only)*
Division of Fish and Wildlife ATTN: Billing Clerk - PJ Bonneville Power Administration P.O. Box 3621 Portland, OR 97208-3621	$ 1,700,416.00 NTE	PJ 27 GNL 1122 Increase: $129,704.00

18. APPROVED BY (Signature)	DATE	19. APPROVED BY (Signature)	DATE
Marlene L Haywood	2/8/93	Delbert S Olenslager	2/16/93
NAME & TITLE (Type or print): Marlene L. Haywood, FWS-9-9-619 Contracting Officer		NAME & TITLE (Type or print): Delbert S. Olenslager Contracting Officer	

U.S. DEPARTMENT ENERGY – BONNEVILLE POWER ADMINISTRATION

AGREEMENT

PMIS

FWS-14-16-0009-88-1828

03/13/92

Agreement No.	Agreement Type	Modification No.	Effective Date	Req. No.
DE-AI79-88BP91964	[X] Interagency	A005	02/16/92	79-92BP29236

Organization and Address:
U.S. Fish and Wildlife Service
National Fishery Research Center
Building 204, Naval Station
Seattle, WA 98115

Issued by:
U.S. Department of Energy
Bonneville Power Administration - SRPF
P.O. Box 3621
Portland, Oregon 97208

Technical Contact	Phone No.	BPA Technical Contact	Phone No.
Tom Poe/W. Nelson	(509) 538-2299	Bill Maslen	(503) 230-5549

Administrative Contact	Phone No.	BPA Administrative Contact	Phone No.
M.L. Dixon	FTS 392-6287	Patrice Baker	FTS 429-5369

This agreement was negotiated pursuant to:
[X] 31 U.S.C. 1535 *(Federal)*
[ ] 16 U.S.C. 832a(f) *(Customer)*
[ ] 16 U.S.C. 832g *(Other)*

Agreement effective from date in block 4 until: February 15, 1996 (No Change)

Title and brief description of work to be performed under this agreement:

PROJECT NO. 82-003:
SIGNIFICANCE OF PREDATION AND DEVELOPMENT OF PREY PROTECTION MEASURES FOR JUVENILE SALMONIDS IN THE COLUMBIA AND SNAKE RIVER RESERVOIRS

This Modification is issued to authorize the following changes:

1. Revise the Statement of Work. The revised Statement of Work supersedes all previous Statements of Work.
2. Incorporate "Endangered Species Action Permits/Consultation" clause into the Terms and Conditions (Attachment II).
3. Authorize additional funding as follows:

CURRENT AGREEMENT TOTAL:	$1,001,106.00
INCREASE MODIFICATION NO. A005:	569,606.00
REVISE AGREEMENT TOTAL:	$1,570,712.00

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

ATTACHMENT I -- Revised Statement of Work
ATTACHMENT II -- Addendum to Terms and Conditions
ATTACHMENT III -- Budget (02/16/92-02/15/93)

If this is an Intergovernmental or Customer Agreement, the provisions on the reverse of this form are a part of the Agreement.

Submit invoice to:
Division of Fish and Wildlife
ATTN: Billing Clerk - PJ
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

Amount to be paid by BPA: $ 1,570,712.00 NTE

Accounting information:
PJ 27 GNL F1122
Increase: $569,606.00

Participant — Approved by: Marlene L. Haywood (signature) — Date: 2/27/92
Marlene L. Haywood, FWS-9-9-619
Contracting Officer

BPA — Approved by: Delbert S. Olenslager (signature) — Date: 3/2/92
Delbert S. Olenslager
Contracting Officer

(MS2 SPPF-7130...)

BPA F 4220.31
(02-91)
(Previously BPA 1398 & 1270.01)

U.S. DEPARTMENT OF ENERGY – BONNEVILLE POWER ADMINISTRATION

AGREEMENT

PMIS 03/13/92

FWS-14-16-0009-88-1828 (M-4)

1 AGREEMENT NO	2 AGREEMENT TYPE	3 MODIFICATION NO	4 EFFECTIVE DATE	5 PROCUREMENT REQUEST NO
DE-AI79-88BP91964	[X] Interagency [ ] Intergovernmental [ ] Intraagency [ ] Customer	A004	12/19/91	79-92BP28077

ISSUED TO:

6 ORGANIZATION AND ADDRESS
U.S. Fish and Wildlife Service
National Fishery Research Center
Building 204, Naval Station
Seattle, WA 98115
01301

7 TECHNICAL CONTACT: Tom Poe/W. Nelson — PHONE NO: (509) 538-2299

8 ADMINISTRATIVE CONTACT: M.L. Dixon — PHONE NO.: FTS 392-6287

ISSUED BY:

9 ORGANIZATION AND ADDRESS
U.S. Department of Energy
Bonneville Power Administration - SRPF
P.O. Box 3621
Portland, Oregon 97208

10 BPA TECHNICAL CONTACT: Bill Malsen — PHONE NO: (503) 230-5549

11 BPA ADMINISTRATIVE CONTACT: Patrice Baker — PHONE NO: FTS 429-5369

12 THIS AGREEMENT WAS NEGOTIATED PURSUANT TO
[ ] 31 U.S.C. 1535 (Federal) [X] 16 U.S.C. 832g (Other)
[ ] 16 U.S.C. 832a(l) (Customer) [ ] _____

13 AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL
February 15, 1996

14 TITLE AND BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT, DOCUMENTS WHICH ARE ATTACHED TO AND BECOME A PART OF THIS AGREEMENT

PROJECT NO. 82-003:
SIGNIFICANCE OF PREDATION AND DEVELOPMENT OF PREY PROTECTION MEASURES FOR JUVENILE SALMONIDS IN THE COLUMBIA AND SNAKE RIVER RESERVOIRS

This Modification is issued to revise the budget as per Attachment I and authorize additional funding as follows:

CURRENT AGREEMENT TOTAL:	$881,623.00
INCREASE MODIFICATION NO. A004:	119,483.00
REVISED AGREEMENT TOTAL:	$1,001,106.00

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

Attachment I -- Budget Addendum

If this is an Intergovernmental or Customer Agreement, the provisions on the reverse of this form are a part of the Agreement.

15. SUBMIT INVOICE TO:
Division of Fish and Wildlife
ATTN: Billing Clerk - PJ
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

16. AMOUNT TO BE PAID BY BPA
$ 1,001,106.00 NTE

17. ACCOUNTING INFORMATION (BPA use only)
PJ 27 GNL [redacted]1122 /
Increase: $119,483.00

18. APPROVED BY (Signature) — DATE: 1/21/92
NAME & TITLE (Type or print)
Marlene L. Haywood, FWS-9-9-619
Contracting Officer

19. APPROVED BY (Signature) — DATE: JAN 29 1992
NAME & TITLE (Type or print)
Delbert S. Olenslager
Contracting Officer

REIMBURSABLE

PMIS 9/5/90

U.S. DEPARTMENT OF ENERGY – BONNEVILLE POWER ADMINISTRATION

AGREEMENT

(Previously BPA 1398 & 1270.01)

1 AGREEMENT NO	2 AGREEMENT TYPE	3 MODIFICATION NO	4 EFFECTIVE DATE	5 PROCUREMENT REQUEST NO
14-16-0009-88-1828 DE-A179-88BP91964	X Interagency ☐ Intergovernmental ☐ Intraagency ☐ Customer	A002	07/16/90	79-90BP11380

ISSUED TO

8 ORGANIZATION AND ADDRESS
U.S. Fish and Wildlife Service
National Fishery Research Center
Building 204, Naval Station
Seattle, WA 98115
013001

7 TECHNICAL CONTACT: Thomas Poe/W. Nelson — PHONE NO: (509) 538-2299

8 ADMINISTRATIVE CONTACT: M.L. Dixon — PHONE NO: FTS 392-6287

ISSUED BY

9 ORGANIZATION AND ADDRESS
U.S. Department of Energy
Bonneville Power Administration - SRPF
P.O. Box 3621
Portland, Oregon 97208

10 BPA TECHNICAL CONTACT: Bill Maslen — PHONE NO: FTS 429-5549

11 BPA ADMINISTRATIVE CONTACT: Patrice Baker — PHONE NO: FTS 429-5369

12 THIS AGREEMENT WAS NEGOTIATED PURSUANT TO
☒ 31 U.S.C. 1535 (Federal) ☐ 16 U.S.C. 832g (Other)
☐ 16 U.S.C. 832a(f) (Customer) ☐ _____

13 AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL
February 15, 1992

14 TITLE AND BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT DOCUMENTS WHICH ARE ATTACHED TO AND BECOME A PART OF THIS AGREEMENT

PROJECT 82-003
SIGNIFICANCE OF PREDATION AND DEVELOPMENT OF PREY PROTECTION MEASURES FOR JUVENILE SALMONIDS IN THE COLUMBIA AND SNAKE RIVER RESERVOIRS

This modification is issued to authorize the following:

(1) Change title of project 82-003 to: "Significance of Predation and Development of Prey Protection Measures for Juvenile Salmonids in the Columbia and Snake River Reservoirs".

(2) Change BPA Administrative Contact in block 11 to Patrice Baker, FTS 429-5369.

(3) Revise the Statement of Work. The revised Statement of Work supersedes all previous statements of work.

(4) Extend Agreement effective date in block 13 to February 15, 1992.

(5) Authorize additional funding for period 07/16/90 - 02/15/91, as follows:

Current Agreement Total:	$486,079.00
Increase this Mod. A002:	141,646.00
New Agreement Total:	$627,725.00

If this is an Intergovernmental or Customer Agreement, the provisions on the reverse of this form are a part of the Agreement.

15 AMOUNT TO BE PAID BY BPA	16 AMOUNT TO BE PAID TO BPA
$627,725.00 NTE	$ N/A

17 SUBMIT INVOICE TO:
Division of Fish and Wildlife
ATTN: Billing Clerk
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

18 ACCOUNTING INFORMATION (BPA use only)
PJ 27 CNL 1101
Increase: $141,646.00

19 SUBMIT INVOICE TO
NAME
ADDRESS

PARTICIPANT

20 APPROVED BY (Signature) — DATE 7/30/90
NAME & TITLE (Type or print)
Marlene L. Haywood, FWS-9-9-619
Contracting Officer

BPA

21 APPROVED BY (Signature) — DATE 8/15/90
NAME & TITLE (Type or print)
Delbert S. Olenslager
Contracting Officer

BOSTON PUBLIC LIBRARY
3 9999 05982 706 1

230

BPA F 4270.31
(10-89)
(Previously BPA 1398 & 1270.01)

U.S. DEPARTMENT OF ENERGY BONNEVILLE POWER ADMINISTRATION

AGREEMENT

PMIS
4/16/91

1 AGREEMENT NO	2 AGREEMENT TYPE	3 MODIFICATION NO	4 EFFECTIVE DATE	5 PROCUREMENT REQUEST NO
DE-AI79-88BP91964	[X] Interagency [ ] Intergovernmental [ ] Intragency [ ] Customer	A003	02/16/91	79-91BP17161

ISSUED TO:
6 ORGANIZATION AND ADDRESS
U.S. Fish and Wildlife Service
National Fishery Research Center
Building 204, Naval Station
Seattle, WA 98115

7 TECHNICAL CONTACT: Tom Poe/W. Nelson — PHONE NO: (509) 538-2299
8 ADMINISTRATIVE CONTACT: M.L. Dixon — PHONE NO: FTS 392-6287

ISSUED BY:
9 ORGANIZATION AND ADDRESS
U.S. Department of Energy
Bonneville Power Administration - SRPF
P.O. Box 3621
Portland Oregon 97208

10 BPA TECHNICAL CONTACT: Bill Maslen — PHONE NO: (503) 230-5549
11 BPA ADMINISTRATIVE CONTACT: Patrice Baker — PHONE NO: FTS 429-5369

12 THIS AGREEMENT WAS NEGOTIATED PURSUANT TO
[ ] 31 U S C 1535 (Federal) [X] 16 U S C 832g (Other)
[ ] 16 U S C 832a(f) (Customer) [ ]

13 AGREEMENT EFFECTIVE FROM DATE IN BLOCK 4 UNTIL
February 15, 1996

14 TITLE AND BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT. DOCUMENTS WHICH ARE ATTACHED TO AND BECOME A PART OF THIS AGREEMENT

PROJECT 82-003: SIGNIFICANCE OF PREDATION AND DEVELOPMENT OF PREY PROTECTION MEASURES FOR JUVENILE SALMONIDS IN THE COLUMBIA AND SNAKE RIVER RESERVOIRS

This modification is issued to authorize the following changes:

(1) Revise the Statement of Work by replacing pages 10-18 and 23 with pages 10-19 and page A. The revised Statement of Work supersedes all previous Statements of Work.

(2) Extend agreement effective period in block 13 to February 15, 1996.

(3) Authorize additional funding as follows:

Current Agreement Total:	$627,725.00
Increase Modification A003:	253,898.00
Revised Agreement Total:	$881,623.00

(4) Revise reporting requirements in Terms and Conditions per Attachment III.

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

ATTACHMENT I - Statement of Work Replacement Pages
ATTACHMENT II - Budget (02/16/91 through 02/16/92)
ATTACHMENT III - Revised Terms and Conditions Reporting Requirements

If this is an Intergovernmental or Customer Agreement, the provisions on the reverse of this form are a part of the Agreement.

15 AMOUNT TO BE PAID BY BPA	16 AMOUNT TO BE PAID TO BPA
$ 881,623.00 NTE	$ N/A

17 SUBMIT INVOICE TO
Division of Fish and Wildlife
ATTN: Billing Clerk - PJ
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

18 ACCOUNTING INFORMATION (BPA use only)
PJ 27 GNL *F1101
Increase: $253,898.00

19 SUBMIT INVOICE TO
NAME
ADDRESS

20 APPROVED BY (Signature)	DATE	21 APPROVED BY (Signature)	DATE
[signature]	3/5/91	[signature]	3/15/91
NAME & TITLE (Type or print)		NAME & TITLE (Type or print)	
[illegible] L. Hayward		Delbert S. Olenslager Contracting Officer	

PM1 > OR 7/5/89

AUTHENTICATED COPY

U.S. DEPARTMENT OF ENERGY—BONNEVILLE POWER ADMINISTRATION

AGREEMENT

1. AGREEMENT NO.	1A. AGREEMENT TYPE:	MODIFICATION NO.	2 EFFECTIVE DATE	3. PROCUREMENT REQUEST NO.
DE-A179-88BP91964	(X) Interagency ( ) Intraagency ( ) Intergovernmental ( ) Customer	A001	Same as date in Block 15	79-89BP00581

4. ISSUED TO:
U.S. Fish and Wildlife Service
National Fishery Research Center
Building 204, Naval Station
Seattle, WA 98115
C13001

5. ISSUED BY:
U.S. Department of Energy
Bonneville Power Administration - SRPF
P.O. Box 3621
Portland, Oregon 97208

6. PRINCIPAL CONTACTS
Technical Thomas Poe/William Nelson
Phone (509) 538-2299
Administrative M.L. Dixon
Phone FTS 392-6287

7. PRINCIPAL CONTACTS
Technical Bill Maslen
Phone FTS 429-5549
Administrative Robb R. Pierson
Phone FTS 429-4042

8. THIS AGREEMENT WAS NEGOTIATED PURSUANT TO:
☐ 31 U.S.C. 686(a) (Federal) ☐ 16 U.S.C. 832g (Other)
☐ 16 U.S.C. 832a(f) (Customer) ~~X 31 U.S.C. 1535~~

9. ACCOUNTING INFORMATION (BPA USE ONLY):
PJ 25 GNL F1101 INCREASE: $231,047.00

10. TITLE AND BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT:
MAGNITUDE AND DYNAMICS OF PREDATOR-CAUSED MORTALITY ON HEALTHY JUVENILE SALMONIDS IN COLUMBIA AND SNAKE RIVER RESERVOIRS, PROJECT 82-003

This modification is issued to authorize the addition of funds as follows:

Current Agreement Total:	$255,032.00
Increase this Mod. A001:	$231,047.00
New Agreement Total:	$486,079.00

This is a cost-reimbursement Agreement.

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

The following documents are attached to and become a part of this Agreement:
ATTACHMENT I - Revised Project Budget

If this is an Intergovernmental or Customer Agreement, the provisions on the reverse of this form are a part of the Agreement.

11. AMOUNT TO BE PAID BY BPA: $ 486,079.00

~~Submit SF 1081 or other invoices to:~~

~~Division of Fiscal Accounting and Disbursement - DT~~
~~Bonneville Power Administration~~
~~P.O. Box 3621~~
~~Portland, Oregon 97208~~

12. AMOUNT TO BE PAID BPA: $

Accounting Information:

SF 1081 to be submitted to:
Name
Address

13. EFFECTIVE PERIOD OF AGREEMENT:
This Agreement will be effective from the date in Block 2 until July 15, 1990

14. SIGNATURE OF PARTICIPANT:
BY Gerald A. Henderson

15. U.S. DEPT. OF ENERGY, BONNEVILLE POWER ADMINISTRATION
BY: Delbert S. Olenslager

NAME AND TITLE OF SIGNER (Type or Print)	DATE SIGNED	NAME AND TITLE OF SIGNER (Type or Print)	DATE SIGNED
Gerald A. Henderson Contracting Officer	6/13/89	Delbert S. Olenslager Contracting Officer	6/19/89

(VS2-SRPF-2498W)

BPA 1330 AUG. 1983

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PMIS
CR
8/1/88

AGREEMENT

FWS Agreement No. 14-16-0009-88-1828

1. AGREEMENT NO	1A. AGREEMENT TYPE	MODIFICATION NO	2. EFFECTIVE DATE	3. PROCUREMENT REQUEST NO
DE-AI79-88BP91964	(X) Interagency ( ) Intraagency ( ) Intergovernmental ( ) Customer	N/A	Date of CO's Signature, Block #15	79-88BP91964

4. ISSUED TO

U.S. Fish and Wildlife Service
National Fishery Research Center
Building 204, Naval Station
Seattle, WA 98115

5. ISSUED BY:

U.S. Department of Energy
Bonneville Power Administration - SRPA
PO Box 3621
Portland, Oregon 97208

6. PRINCIPAL CONTACTS

Technical: Thomas Poe/William Nelson
Phone: (509) 538-2299
Administrative: M.L. Dixon
Phone: FTS: 392-6287

7. PRINCIPAL CONTACTS

Technical: Bill Maslen
Phone: FTS: 429-5549
Administrative: Robb R. Pierson
Phone: FTS: 429-4205

8. THIS AGREEMENT WAS NEGOTIATED PURSUANT TO:

☐ 31 U.S.C. 686(a) (Federal)
☐ 16 U.S.C. 832a(f) (Customer)
☐ 16 U.S.C. 832g (Other)
☒ 31 U.S.C. 1535

9. ACCOUNTING INFORMATION (BPA USE ONLY)

100 PJ 25 GNL 1101

10. TITLE AND BRIEF DESCRIPTION OF WORK TO BE PERFORMED UNDER THIS AGREEMENT

MAGNITUDE AND DYNAMICS OF PREDATOR-CAUSED MORTALITY ON HEALTHY JUVENILE SALMONIDS IN COLUMBIA AND SNAKE RIVER RESERVOIRS, PROJECT 82-003

This is a Cost Reimbursement Agreement.

The following documents are attached to and become a part of this Agreement

1. Attachment I - Terms and Conditions
2. Attachment II - Statement of Work
3. Attachment III - Project Budget

If this is an Intergovernmental or Customer Agreement, the provisions on the reverse of this form are a part of the Agreement.

11. AMOUNT TO BE PAID BY BPA: $ 255,032.00

~~Submit SF 1081 or other invoice to:~~
~~Division of Fiscal Accounting and Disbursement - DT~~
~~Bonneville Power Administration~~
~~PO Box 3621~~
~~Portland, Oregon 97208~~

12. AMOUNT TO BE PAID BPA: $

Accounting Information:

SF 1081 to be submitted to:

Name
Address

13. EFFECTIVE PERIOD OF AGREEMENT:

This Agreement will be effective from the date in Block 2 until July 15, 1990

14. SIGNATURE OF PARTICIPANT:

BY: Richard H. Reckeweg

15. U.S. DEPT. OF ENERGY, BONNEVILLE POWER ADMINISTRATION

BY: J Mortensen

NAME AND TITLE OF SIGNER (Type or Print)	DATE SIGNED	NAME AND TITLE OF SIGNER (Type or Print)	DATE SIGNED
Richard H. Reckeweg Contracting Officer	7-8-88	Joan D. Mortensen Contracting Officer	7/13/88

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